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ADDRESSES.

SOME OF THE CAUSES OF THE DISEASES OF WOMEN.

The Annual Address before the Chicago Gynæcological Society by the Retiring President,

DANIEL T. NELSON, M.D.

OF CHICAGO.

Another year of the history of our Society has completed its cycle, and it is well for us to briefly review its history, and profiting by the past experience, arrange more comprehensive plans for its future usefulness.

While the fountain does not rise as high as its source, the usefulness of a Society like ours is really greater than the combined work of its individual members; for I am sure we have all appreciated, during the past year, that there has been a reflex benefit to each of us from the work and discussions of the Fellows which does not appear on the records.

The work of the past year, I am sure you will all agree with me, has been the best in the history of our Society, both in quality and number of the papers presented, and in the attendance and character of the discussions.

The partially inaugurated plan of discussing special subjects at stated meetings, with papers carefully prepared upon these topics to guide in the discussion, is believed to be a good one, as a sufficient time is likely to be given to the paper to make it worthy of careful discussion, and, as we have seen, these discussions are likely to be of value not alone to ourselves, but to the whole medical world. And the stimulus to good work in the preparation of the papers is not the least advantage of the plan.

These special topics need not debar volunteer papers, reports of cases, and the like, as either or both may be made the order of business at any meeting by vote of the Society, or extra meetings may be held, as this year during the vacation, when two extra meetings were held (July and August). The plan, it is believed, will increase the quantity of the material presented to the Society, and improve its quality.

It is recommended that the officers of the Society, the President, the two Vice-Presidents, the Secretary, and Editor, or other committee of five, be elected at each annual meeting, to constitute an Executive Committee, whose duty it shall be to arrange the topics of business for each meeting, and notify the Secretary in time to give due notice to the Fellows, and so far as possible report to the Society the papers and topics for discussion at least quarterly in advance, making such changes from time to time as they may deem advisable or the Society may direct.

And I would raise the query, Can this Society in any way stimulate a greater amount of original research in our department of medicine? Would a prize of $25 or $50, offered under proper restrictions, each year, bring out any good original investigations among our members? And need it be confined to our own membership, provided the work be meritorious and within the scope of this Society? If the plan seems wise, would it not be better to raise the fund needed by subscription rather than by taxation?

No more fruitful topic for research, and hardly one more difficult, could be proposed than the Diseases of the Placenta, for even its anatomy and physiology are believed by some not to be fully established. Would not a better knowledge of the diseases of this organ explain many of the miscarriages and still-births which are not now even attempted to be explained? If the causes were understood, might not the means of preventing be found out?

Some preventive measures have been discussed during the past year, such as the prevention of the laceration of the perineum and cervix; but there is still a legion of ills which may be termed reflex diseases—the headaches, the backaches, the hot flushes, the chills and sweating, the palpitation, the fainting, the difficult breathing, the dyspepsia, the constipation, the anæmia, the neuralgia, or in a word, the hysteria, or if you prefer, the neurasthenia. Are these diseases increasing? Would we could hope they were not! But can they not be prevented? And where is their primal cause, and what the prevention? Why the dysmenorrhœa, spanmenorrhœa, and the amenorrhœa? Why the displacements, the cellulitis, and the peritonitis? the tumors, both fibroid and ovarian? Are there not causes for these diseases which can be found out, and being known, the diseases avoided? And would not these be grander achievements than have been accomplished by a McDowell, a Sims, a Wells, or a Tait? More lives would be saved, more suffering would be prevented, more children would be born. The State would be enriched and the individual made better and happier. Said the late Dr. Samuel D. Gross, not long before his death, at the dedication of the McDowell monument: "Young men of America, listen to the voice

of one who has grown old in the profession, and who will probably never address you again, as he utters a parting word of advice. The great question of the day is not this operation or that, not ovariotomy or lithotomy, or a hip joint amputation, which have reflected so much glory upon American medicine, but *preventive medicine*, the hygiene of our persons, our dwellings, our streets.

"The day has arrived when the people must be roused to a deeper and more earnest sense of the people's welfare, and suitable measures adopted for the protection, as well as for the better development, of their physical, moral and intellectual powers. This is the great problem of the day, the question which you, as the representatives of the rising generation of physicians, should urge, in season and out of season, upon the attention of your fellow-citizens; the question which alone and beyond all others should engage your most serious thoughts and elicit your most earnest coöperation."

While like begets like, largely, yet with proper care the children may be *better* than the parents. This has been accomplished in numerous instances among the lower animals, and why should it not be with the highest and most intelligent animal, man, if the same care were exercised?

Among the Jews the physician is frequently consulted before matrimonial alliances are contracted. Other denominations would do well to adopt this salutary custom, for if rightly carried out, it would prevent much disease and suffering among the contracting parties and their offspring.

While hereditary diseases may not be entirely prevented in children, yet if carefully watched and properly treated, the tendency may be largely overcome, especially if the children are so closely watched that the beginnings of disease are noticed, for there are few diseases which are not curable if taken in their incipiency. And in the present state of our knowledge are there not few diseases whose cause is really unknown, and therefore not preventable?

The causes of disease in woman may be conveniently arranged, as regards time, under the heads: 1. The diseases of puberty; 2, of menstrual life; and 3, of senility. The foundation for not a few of the pelvic disorders is laid during puberty, which is not to be considered simply the date at which the menses first appear, but rather the whole period required for the development of the sexual organs, the completion of which process is marked by the appearance of the menstrual discharge. No one who is familiar with the diseases of woman will doubt that a large percentage of these diseases, beginning at puberty or soon after, are continued with a varied history during the life of the patient, being increased or decreased according to the patient's good fortune, or perchance from treatment.

It seems to me Dr. Nathan Allen, of Lowell, Mass., has very tersely enunciated the correct basis upon which rests the "Laws of Health and Longevity," and the "Laws of Population and Human Increase," namely, upon a normal anatomy and physiology—"a perfect development of all the organs of the body, so that there shall be a perfect harmony in the performance of all their respective functions." No one of our organs is unimportant; not one can be left out or weakened in its functional activity without the whole body suffering loss, and no one can be perfect without perfection in all the rest.

There is, I know, a law of compensation, whereby if one organ or system of organs is disabled or overworked, another will try to aid it to do its work, as the skin and alimentary canal when the kidneys are disabled, or the fingers and the ear when the eyes are useless; but these are conditions of disease, not health; of pathology, not physiology.

Tried by this law, then, what are the conditions necessary for the normal development of the reproductive organs? Plainly, the normal development and activity of all of the other organs and systems of organs, and conversely, the other systems of organs can only attain their highest functional activity when the sexual organs are perfectly developed. During the period of puberty, then, from 10 to 18 years, or more commonly from 12 to 16, do we ordinarily find the girls in our families possessed of an alimentary, glandular and vascular system sufficiently developed and so normally active that a healthy blood, containing in quantity and quality just the pabulum needed, is carried to each tissue? During these years of puberty which we are considering, the teeth begin to break down, in not a few instances, and as the result digestion is impaired.

But why do the teeth so often decay in girls at puberty and during early married life? Why is it, for example, that the German, Swede and Norwegian girls who come to this country with model teeth and are the picture of health, unless we except the light complexion of the Scandinavians as hardly compatible with the most robust health—why is it that these girls live in our families but a few years before their teeth begin to decay, and they lose the fresh bloom of health which they brought from their native land? And then, if they marry and bear two or three children, they are almost a wreck; their teeth are so decayed as to be of no use for mastication. They are poor and feeble, pale and anæmic, old and haggard, but the shadow of their former selves; in the best possible condition to receive and develop almost any form of disease, tuberculosis and the like. Why this change? It is not simply the change in their habits of life and the climate, though these have doubtless had their influence; but I believe a far more important cause will be found in the quality of their food. The quantity of the food they consume is probably greater than what they would get in the old country; but is the quality as appropriate for the nourishment and development of *all* the tissues? I believe not. For while the carbonaceous and albumenous foods are eaten in greater quantity, the *inorganic* is deficient, and here is an important source of weakness and decay, as I believe. The inorganic portion of the wheat is largely removed in the process of grinding, leaving only the starch and some of the gluten in the white flour which is eaten. While the brown bread from the coarser flour and from rye, which was formerly used largely in this country, and is still in most foreign countries, contained far more of the inorganic sub-

stances necessary for the development and nutrition of the bones, the teeth, and other important tissues, and as the result, the teeth erupted earlier, were better formed, and did not decay as readily, the bones were better developed, and all the tissues firmer.

During pregnancy, if the inorganic foods are not furnished the mother in sufficient quantity, the fœtus will even take it from the bones, and especially the teeth, of the mother, for all the tissues, the softest as well as the hardest, must have inorganic food, and while these resources of the mother are freely drawn upon the deficiency may be so great that both the mother and child suffer for the want of them. But it is the rule that the mother will suffer first from the deficiency, her stomach will be disturbed, indigestion, heart-burn, and the like, and her teeth will decay and break away before the tissues of the fœtus will seem to suffer. But these symptoms may usually be readily relieved by giving the mother a sufficient quantity of the lime and magnesia salts—in other words, furnishing her with a sufficient quantity of inorganic food.

And the developing tissues of infancy and childhood need more food of all kinds, the inorganic included, than the simply working tissues of adult life. So during puberty the girl needs more of this food for the proper development of the reproductive organs, a whole system of organs developing within a few years. To insure, then, a normal development of the sexual organs at puberty, there must be a suitable supply of *all* kinds of food, and not the least, the inorganic.

Among our American girls there is another important cause of imperfect development, and consequently abnormal functional activity of the generative organs, in the *style of dress* now so nearly universal, consisting essentially of the tightly fitting *corset*, with equally tight outer clothing—for even if the corset may seem to be loose when first applied, and they are never acknowledged to be tight by the wearer—yet it must and does prevent the expansion and development of the lungs and the muscles of the back and abdomen. It displaces the liver and stomach upward, and presses the abdominal viscera downward upon the pelvis, compressing these organs during the important period of their development, and laying the foundation for the congestions, the pelvic inflammations, the flexions, the displacements, and perhaps even the ovarian and fibroid tumors of later years. Among girls of foreign birth the corset is not generally put on until the changes of puberty are complete, consequently its evil effects are not seen as early, usually not until several years of menstrual life, or even after marriage. But our American girls are not *dressed* without the corset, even *before* puberty, so they have its evil effects during puberty, during menstrual life, and generally during the rest of their lives.

Not only does the corset prevent the development of and displace the important organs of the thorax, abdomen and pelvis, but it either alone, or with ingeniously contrived additions, is made to compress and prevent the development of the mammary glands, while it seems to enlarge them.

Dr. DeWolf tells us that statistics show that half of all the deaths are children under five years of age, and that while forty per cent. of all the babies born in the United States die in infancy, only eighteen per cent. die during the same period in Norway.

The chief reason for this frightful difference in the mortality is doubtless due to the fact that so many more mothers can nurse their children in Norway than in the United States, for I will not believe that there are many mothers in any country *who will not* nurse their children when they can. Corroborating and explaining these statistics is the statement that 10,000,000 of nursing bottles were made in this country during the last year. How many were exported and how many more were imported is not stated. Neither are we told how many *tons* of infant foods were manufactured in the United States and imported during the same period. Surely, all must acknowledge that very many of our American mothers cannot nurse their children, or only for a very short period, and that this is one of the important causes producing this frightful mortality among our children. Have we explained in part the reason for this? If so, the remedy is evident.

But so long as the corset is in favor, the gynecologist and the undertaker will thrive, and the wet nurse will be in demand.

But other systems are needed to complete the harmony necessary to the perfect development of the reproductive organs at puberty, beside the alimentary, the vascular, and the glandular. The muscular and the nervous systems have most important functions to perform. Physiologists estimate that the voluntary muscles normally require from one-third to one-quarter of all the blood for their nutritive and functional activity, and *vice versa*, healthy and active muscles are required for a normal blood, which shall be rich in the pabulum needed for the developing tissues. And here our American girls usually fail as puberty approaches, their muscular exercise is restricted, they are confined within doors and their time given to music, drawing, painting, and receiving friends, instead of the more active pursuits which would continue the development of the muscular system, while it aided alimentation; or perhaps what is worse, their time is devoted largely to study, thus calling into undue activity the nervous centres, and so developing the whole nervous system that this is ever afterward the dominant system.

The recent innovation of the manual training schools for boys is in the right direction for them, that their muscles may be developed and trained while their minds are being educated. And is there not an even greater need for similar schools for girls, that their muscles may be developed to correspond with the other organs? As during pregnancy, the developing fœtus excites to activity all the other organs and systems of organs, and they in turn furnish the material needed for its further growth, so at puberty the growing sexual organs furnish a new stimulus to activity for all the tissues, and they in turn will exert an influence for good or ill upon these developing organs.

Dr. J. M. Toner, of Washington, D. C., who has

compiled some valuable tables showing the birth and death rate in different States and at different periods of time, says: "With a desire to view this question of birth-rate from a standpoint that would be sufficiently comprehensive, and yet free from even the appearance of preconceived notions or sectional partiality, I have made something of a study of what the records of the U. S. census of 1870 teach upon the subject of population, in its enumeration by ages; also of the births, deaths, etc. From this source I find undoubted evidence of a gradual decline in the population of children under 15 to the number of women between 15 and 50 years of age in our country. I do not propose to adopt any theory or to explain this extraordinary condition. But it is proper that the profession and the country should be made acquainted with the facts, and made to realize that the American people in this particular are showing unmistakable signs of physical degeneracy.

"I have," he says, "embodied facts only, and leave the enlightened understanding of the American people to assign the reasons, from the evidence everywhere around them, and to supply the remedy."

Do not the statements we have made point to some, at least, of the causes of this degeneracy? 1st. In the food not being appropriate for normal development. 2d. In a style of dress which hinders the development of several systems of organs; and 3d. In such habits of life that some systems of organs are developed out of proportion to the rest.

Says the Hon. Francis A. Walker, after comparing the increase in population during the decades 1840–50, and 1850–60, with the increase from 1860–70, the increase should have been three to four millions more. The lack of increase is in part accounted for by the loss of increase of about half a million of colored people, on account of the change in their liberation from slavery, and also by the loss of about a million persons in the Union and Confederate armies, whose deaths were occasioned by the war; and the calling from their homes, during four years of the war, of more than a million men must have had a great effect upon the increase of population.

But he says further, that "another cause may be alluded to namely, the notorious growth of habits of life in many sections of the country, which tend strongly to reduce the rate of national increase, and which, if persisted in, will make the showing of another census hardly so satisfactory as the present, even without a devastating war to account for the loss of hundreds of thousands in hospitals or on the battle-field.

"No one can be familiar with life in the Eastern and Middle States generally, and in the Western cities, and not be aware that children are not born to American parents as they were in the early days of the country. Luxury, fashion, and the vice of 'boarding' combine to limit the increase of families to a degree that in some sections has threatened the perpetuity of our native stock. This tendency is not one that needs be brought out by statistical comparison. It is patent, palpable, and needs no proof."

Of the many causes of disease acting during menstrual and married life, we will take the time to briefly discuss but one, namely, the effects of the gonorrhœal poison in the female. As long ago as 1872 Dr. Noeggerath, of New York, called the attention of the profession to the importance of this poison in producing a variety of pelvic inflammations, and in 1876, in a paper before the American Gynæcological Society, showed the effects of this virus in producing sterility in both the male and female. After these years of experience, many of the profession have learned to appreciate the importance of his observations, but I fear many still do not look for this for an exciting cause in the pelvic inflammations.

The symptoms of the disease have been so well and so fully described by Dr. Noeggerath that we need not now take the time to enumerate them—simply recollecting that an attack of gonorrhœa in the male may produce a slight stricture in some portion of the urethra, or may even affect the seminal vesicles and vasa deferentia, and in these positions remain latent for years, giving the individual no symptoms of its existence and making it difficult for the physician, even, to demonstrate its presence. But intercourse with a previously healthy wife implants the disease in her, and it lights up a series of inflammations which are always tedious and difficult to cure, and may become chronic, lasting through the whole of her menstrual life, and perhaps of her natural life, unless, fortunately, her life be shortened by this inflammation, aggravated by what would otherwise be slight causes.

Beginning as a slight or more severe attack of vaginitis and cervicitis, with likely a moderate attack of urethritis, it may readily be mistaken for the result of coitus in organs not accustomed to this function, or excessively used. But instead of subsiding from simple treatment, or none, as such a form of inflammation should, it extends along the mucous membrane of the whole genital canal, affecting the mucous membrane of the uterus, and even extending to the deeper structures, producing a true metritis; and after a time entering the Fallopian tubes and exciting a salpingitis. And from the peculiar anatomy of these organs—the abdominal end being larger than the uterine—the products of inflammation are readily thrown upon the ovary and into the peritoneal cavity, especially when the uterine extremity is abnormally contracted, as it usually is from the swelling of the tissues. Whence there results a perimetritis, which is usually of high grade in its acute stage, and and very tedious in the chronic. And in the chronic stage is very readily reëxcited into an acute condition by what would otherwise be slight causes—a cold, a fall, skilful manipulation with a sound or other instrument, operations not in themselves dangerous, like those upon the cervix or perineum. And resulting from these inflammations, the woman is very likely to be sterile, or if she becomes pregnant, to miscarry. And after she has been delivered, either at full term or prematurely, is in greater danger of puerperal fever from the chronic inflammation already existing in the pelvis. The gonorrhœal poison, then, in the female, produces a form of inflammation which readily passes into the chronic stage, and is with difficulty treated in either stage.

And how are these consequences to be avoided? Clearly, best by avoiding the original disease. And if these statements are substantially correct, and we believe they are, gonorrhœa is not the simple and temporary disease which it is often considered by both patient and physician—"a cold," "a slight acute disease" easily cured by simple treatment, and completely eradicated. But rather a disease which often continues during the greater part of the life, in the male, is readily transmitted to the wife, in her is, with even more difficulty, satisfactorily treated, and which frequently renders both husband and wife sterile.

As prevention is always the best cure, can there not be some way devised for preventing the spread of the venereal diseases? Should not competent physicians be employed to instruct the pupils in our public schools, of suitable age, the proper use and abuse of the reproductive organs, including the evils resulting from self-abuse, and the venereal diseases? Can we not, as physicians, aid in making vice as degrading and culpable in the *male* as in the *female?* And as gynecologists, hasten the time when our American women shall be the *healthiest*, and so the *happiest* and the *handsomest* of *any land*, as they are now the *brightest* and the *best?*

2400 Indiana Avenue

ORIGINAL ARTICLES.

WHAT IS THE PROPER TREATMENT OF PENETRATING WOUNDS OF THE ABDOMEN?[1]

BY HENRY H. SMITH, M.D.,

OF PHILADELPHIA.

Among the marked changes of surgical doctrine, noted in the present century, none is more striking than the opinions held by many in regard to the development and results of peritonitis after injuries that involve this membrane. That inflammation of serous membranes presents rapid changes of circulation, sensibility and secretion, attended by marked constitutional disturbance, has long been admitted, and the apprehensions felt as to the result have been generally regarded as well founded. Yet such fears have not been universal: Marjolin, in 1832, having stated[1] that "he had often seen wounds of the peritoneum cured without any disturbing accident; whilst it was well known that paracentesis abdominis could be repeatedly performed, without creating peritonitis."

At the present time, doubts on this point are much on the increase; it being noted that the pleura can be perforated and serous effusions evacuated, without inflammatory symptoms, whilst Mr. Gay recommends "such incisions into the serous lining of joints, as will give free vent to pus or other products." Fraser also asserts[2] "that traumatic peritonitis, like traumatic pleuritis, is usually circumscribed and limited to the locality of the wound," not producing in every case general symptoms. Gunshot injuries of the peritoneum have also been noted occasionally as unattended by fatal results; thus during the wars of Napolen I, at the attack on Cairo, in the Egyptian campaign, Larry reported[3] a case of gunshot wound that evacuated two ends of a loop of intestine; in which case, in order to relieve strangulation, the wound was enlarged, the intestine returned, and the patient eventually recovered.

So little apprehension is now felt by many gynecologists in regard to free incisions of the peritoneum in cases of abdominal tumors, that they lay open the walls of the abdomen from the sternum or umbilicus to the pubis without much fear of the result. Lawson Tait being recently asked for an opinion on the nature of an obscure tumor of the abdomen, said[4] "Cut the patient open and find out," and it was done and the patient saved. "Surgeons," says he, "are beginning to understand that laparotomy is not such a dreadful operation after all." That it is a capital operation he admits—so are many others that no surgeon hesitates to perform, and "the idea," he says, "is rapidly becoming a thing of the past, that the peritoneum is a structure which must not be touched." In the same tone and on the same subject, Dr. Fowler, in an address as Chairman of the Surgical Committee of the Medical Society of Kings County, New York, speaking of the work done by Tait and Treves, says:[5] "But there is yet work to be done before men, and good men too, can be induced to come out of their shell of conservatism, so-called, and with a bold front help to break down the prejudices and misgivings based upon an ill-founded fear of the peritoneum and its behavior under the knife. A very marked demonstration of the tolerance of the peritoneum under the knife was recently shown by Mr. Barker in the London Clinical Society, where an intussusception of the ileum, with complete obstruction of the bowel and acute general peritonitis, was operated on successfully by laparotomy; the inflammatory products being mopped out of the peritoneal cavity with sponges moistened with carbolized water, and the wound dressed with salicylated cotton and iodoform; the acute symptoms being at once relieved by the operation. Mr. Bryant, in complimenting Mr. Barker on the success of his treatment, stated he "did not consider peritonitis a bar to the operation."[6]

With such views freely expressed, especially by gynecologists, are surgeons justified, in any case of gunshot wound penetrating the peritoneum, in opening the abdominal walls, checking hæmorrhage, removing foreign substances and giving free vent, by drainage-tubes or other means, to the pus, etc., found in connection with wounds? This important question can only be regarded as yet "*sub judice.*" In a recent report[7] of gunshot wound of the intestines successfully treated by laparotomy by Dr. Bull, of the New York Hospital (all the small intestines ex-

[1] Read in the Section on Surgery, at the Thirty-Seventh Annual Meeting of the American Medical Association.

[1] Dict. de Méd. Plaies de l'Abdomen. Paris, 1832.

[2] Fraser. Penetrating Wounds of the Chest. London, 1869.

[3] Dict. de Méd.

[4] Archives of Gynecology, No. 1, Feb., 1886, p. 16. New York, 1886.

[5] Archives of Gynecology, No. 1, Feb., 1886, p. 16.

[6] Editorial in Phila. Med. Times, April 17, 1886, p. 535.

[7] Medical News, Feb. 14, 1885, p. 171.

cept the duodenum being examined out on the abdomen, and numerous wounds sutured), the treatment being subsequently discussed, January 27, 1885, in the New York Surgical Society,[8] Dr. Bull stated as a proposition that "given an abdominal wound, with a patient in good condition, and without any symptoms which would enable the surgeon to determine whether or not the intestines have been perforated, he believed it proper first to explore the wound, and if it was found to enter the peritoneum, then to open the peritoneal cavity by operation and endeavor to remedy the damage done." In the course of the debate Dr. Weir, of New York, "believed it justifiable to make an exploratory incision and to examine with the finger," etc., but Dr. Sands said whilst "he should feel strongly inclined to follow the practice adopted by Dr. Bull, he yet thought it impossible, at present, to formulate our experience so that it would enable us to determine positively when to operate."[9]

As this recent debate and recent cases hereafter quoted show that there is such diversity of opinion on this subject as renders the surgeon's treatment open to the charge of malpractice; especially in those cases of gunshot wounds which result from violence and expose the attacking party to the grave charge of murder, it is very important that there should be some expression of professional sentiment that will free the surgeon from the charge in a court of justice, that the patient's death was the result of the treatment, and not positively caused by the wound as first created. I present this question, therefore, to this Section, as the highest authority on surgical doctrine in our country, and hope to elicit the judgment of those present whose attention and experience has enabled them to form an opinion.

In order to show that a *healthy* peritoneum as well as a diseased one, can sometimes be freely incised and lacerated without fatal results, I shall briefly allude to three well-known cases. In 1806 Dr. Samuel White, of Hudson, N. Y., removed a silver teaspoon on August 7, thirty days after it had been swallowed by an insane patient.[10] The spoon had passed from the stomach into the intestines, and was perceptible to the touch. By an incision three inches long, parallel with the epigastric artery and extending upwards to near the level of the crest of the ileum, he divided the abdominal muscles, opened the peritoneum with a lancet, caused the lower turn of the intestine, containing the spoon, to protrude, pierced the intestine over the end of the handle with the same lancet, and extracted the spoon with dissecting forceps. He then closed the opening in the intestine with the Glover's suture, dressed the external wound with adhesive strips and lint, and the wound healed by the first intention. There was no Listerism at that date. Renaud, of France,[11] likewise successfully removed a silver fork from a young man's stomach by gastrotomy. Houston reports[12] a case of a woman who fell from a hay-mow upon the handle of a pitchfork, which entered the vagina, passed up into the abdomen, perforated the diaphragm, and passed into the thorax till it struck the second rib. It was withdrawn; the patient lived many years subsequently, and an autopsy showed some of the abdominal viscera had protruded into the thorax. Brigham, of Utica, reported[13] an incision of the abdominal parietes made by an insane woman with a pair of scissors, with which she also cut off seventeen inches of her intestines, and subsequently recovered. Dugas, of Georgia, reported[14] a case in which the intestines were twice cut by a bowie-knife, closed by the Glover's suture and replaced, the abdominal wound sutured, and the patient recovered under a water dressing. Many similar wounds of the peritoneum and viscera are well known and need not now be cited.

The following cases may be mentioned: "Wound of the stomach" (St. Martin) by Joseph Lovell, Surgeon-General U. S. Army. *Am. Med. Recorder*, vol. xiii, p. 14, 1885. "Case of excision of part of the spleen" (the patient recovered after peritonitis) by W. B. Powell, M.D., Kentucky. *Am. Jour. of the Med. Sciences*, vol. i, p. 481, 1828. "Penetrating wound of the abdomen and section of the intestinal canal successfully treated on the plan of Ramsdohr," by Zena Pitcher, M. D., U. S. A. *Am. Jour. of the Med. Sciences.*, vol. x, p. 42, 1832. "Case of gastrotomy, successful," by J. E. Manlove, M.D., Tennessee. *Am. Jour. of the Med. Sciences*, vol. x, N. S., p. 532, 1845. "Perforation of the abdomen (four inches long) by a fence rail; intestine protruded covered with dirt; cleaned and replaced. Recovery." By Robert G. Jennings, M.D., Va. *Stethoscope*, vol. i, p. 490, 1851. "Puncture of the stomach with protrusion of this organ for six hours; nearly the entire stomach protruded. Wound closed by sutures; water dressing; cure." By Chas. Wm. Ashby, M.D., Va. *Stethoscope*, vol. 1, p. 660, 1851. "Wounded intestine treated by suture; recovery," by J. J. Chisholm, M.D., Charleston. *Charleston Med. Jour.*, vol. viii, p. 615, 1853. "Incised wound of left side, three inches long, between the eighth and ninth ribs, followed by protrusion of the stomach and its strangulation. Reduction and recovery." By W. W. Hart, M.D., Miss. *Western Jour. Med. and Surg.*, vol xi, p. 496, 1853. "Abdominal Wound," by Thos. P. Bailey, S. C. *Charleston Med. Jour.*, vol. ix, p. 604, 1854. "Wound of small intestine successfully treated by the interrupted suture," by J. C. McGee, La. *New Orleans Med. and Surg. Jour.*, vol. xi, p. 23, 1854. "Perforation of the stomach; recovery," by C. Haffield, M.D., Charleston. *Charleston Med. Jour.*, vol. x, p. 341, 1855. "Punctured wound of the abdomen; protrusion of intestines; their return obstructed by a band," by A. Fleming, M.D., Philadelphia. *Am. Jour. of the Med. Sciences*, vol. xxxiii, p. 321, 1857. "Incised penetrating wound of the abdomen with wound of and protrusion of intestines; recovery," by J. J. McElrath, M.D., Ark. *New Orleans Med. and Surg. Jour.*, vol. xv, p. 182, 1858.

[8] Idem, p. 184.
[9] Idem, p. 185.
[10] New York Medical Repository, vol. x, p. 367.
[11] Quarterly Jour. of Foreign Med., No. 18, p. 301.
[12] Boston Med. and Surg. Jour., vol. xxii, p. 71.
[13] This case is quoted from Agnew's Surgery, vol. i, p. 352, 1878, as taken from the Amer. Jour. of the Med. Sciences, vol. ix, N. S., p. 355, 1845, but I could not find it by his reference.
[14] Southern Med. and Surg. Jour., vol. viii, p. 407.

McGuire, of Richmond, at the meeting of this Section in 1881,[15] ably discussed the question of the treatment of gunshot wounds of the abdomen; reporting four cases of shot wounds of the peritoneum that did not wound the intestines, showing that a bullet *could* glide between the intestines without wounding them—an important fact in the prognosis and treatment of these cases, by demonstrating that such wounds, without visceral complications, are not impossible. Death, it is true, occurred in all these four cases; but in Dr. McGuire's opinion "it was the result of blood-poisoning, produced by absorption of the bloody serum poured out by the peritoneum after the wound." Might not a free incision and evacuation of this serum have been useful? In continuing his paper Dr. McGuire asks, as I now do: "Is it not time that we were trying some other course of treatment in cases of this character in place of the expectant or do nothing plan generally resorted to?" and he then proposes laparotomy and "a thorough inspection of the injured parts."

Dr. P. S. Conner, of Cincinnati, in his valuable article on this subject,[16] says: "The experience of the past twenty years has clearly demonstrated that the laying open the peritoneum is not as dangerous as had been previously thought; that this serous membrane is a great lymph sac that will absorb septic material most readily and rapidly, and that for a preventive of a fatal result from such absorption, drainage must be secured. When, then, the symptoms clearly indicate that extensive bleeding has occurred or is taking place, or that the stomach or intestines have been opened, it certainly seems to be proper and the surgeon's duty to perform laparotomy, turn out the clots, cleanse the cavity, and provide for the ready outflow of any fluid that may afterwards be poured out."

That this opinion of the liability of absorption by the peritoneum of the diseased products of injuries is sound, is proved by the anatomical study of the tissues, it being well known since the days of Bichat that serous membranes are only a modification of connective tissue, and that there is an identity of functions and affections between the two, as both are continually engaged in the great work of exhalation and absorption; the main difference being that the peritoneum is a more condensed membrane than connective tissue. The peritoneum has also a basement membrane and an epithelium, and is furnished with a great abundance of exhalant pores and absorbents which carry on their functions with great activity.[17] This has been proved by their readily receiving a mercurial injection, which diffuses itself over their whole surface and causes the membrane to appear as if formed entirely of such vessels. Mascagni, whose beautiful plates are well known, asserted that the power of absorption continued in this membrane many hours after death, and Leidy, several years since, established the existence of minute foramina of the peritoneal coat of the stomach; these orifices being, in Horner's opinion, probably formed by meshes of lymphatics; just as the gastro-intestinal follicles are formed by meshes of veins. Unquestionably some communication exists between the arterial system and the peritoneum, as proved by exhalation and morbid phenomena.[18] Bleuland, at Utrecht, and Vanderkolk in Holland, have made preparations which prove that the peritoneum contains blood-vessels. A drawing of the capillary vessels of the peritoneum covering the liver, minutely injected, is also furnished in Smith's anatomical atlas.[19] In the healthy state, the peritoneum is not sensitive, as may be proved by the impunity with which it may be irritated in living animals; though nerves were traced in it by Purkinje, and in the pleura by Bourgery. When serous membranes inflame "they become, as is well known, acutely sensitive, though they resist inflammation for a long time; but when inflammation extends to them, the portion of the peritoneum nearest the seat of disease manifests it by adhesions and disorganization, without the whole membrane becoming involved."[20] The establishment of peritonitis often becomes important in connection with the treatment of wounds of this membrane, and it should not be forgotten that percussion gives a clearer sound in the commencement of peritonitis than in health, and that this clearness day by day becomes more obscure, especially at the lower part of the abdomen, whilst auscultation reveals a friction sound (*bruit de frottement*) analogous to that of pleurisy or pericarditis.[21]

Knowing, then, the active absorbing surface that exists in the peritoneum covering the walls and contents of the abdomen, and the rapidity with which blood-poisoning follows absorption of diseased products, an additional reason is presented (only, it is true, on theoretical grounds), for the evacuation of such products, the cleansing of the tissue and the destruction of diseased germs by the judicious use of antiseptics, and again the question presents itself, how is this, in the case of wounds, to be best accomplished? This question is yet awaiting practical facts and the history of cases in which it has been performed, whether successfully or otherwise, and it is to be hoped that there are some present who can offer them. The extended information furnished by the war of the Rebellion is graphically described by the late Surgeon Otis,[22] of our Army, in the "Surgical History of the War," and I give it as his opinion "that laparotomy will henceforward be employed with increased frequency, not only in the treatment of morbid growths, but also in obstructions and wounds of the abdominal organs."

Admitting, then, that this operation may be correct in certain cases, it is important to remember that when it is performed, the incision should generally be in the line of the linea alba, and be free enough to explore the injured region; that a clear and decided statement should be made by the surgeon to

[15] Trans. Amer. Med. Assoc., vol. xxxii, p. 397 et supra, 1881.
[16] Published in Ashburton's International Cyclopædia of Surgery, vol. i, p. 195, 1882.
[17] Special Anat. and Histology, by Wm. E. Horner, vol. ii, p. 25, 1851.
[18] Op. cit., p. 27, et supra.
[19] Anatomical Atlas Illustrative of the Structure of the Human Body. By Henry H. Smith, Philadelphia, 1844, p. 115, fig. 339.
[20] Op. cit.
[21] Dictionnaire de Medicine, 1841, tome 23, p. 563, from Barth and Roget.
[22] Medical and Surgical History of the War of the Rebellion, part ii, vol. iii, by Geo. A. Otis, p. 206. Washington, 1876.

the patient or his friends of the very serious nature of the wound and the uncertainty of the result; presenting clearly the fact that the operation will possibly give an additional chance of recovery, the patient subsequently wearing an abdominal supporter to guard against hernia. Under anæsthetics; with the caution and technique pursued in laparotomy for the removal of tumors, and with the knowledge, as before stated, that in cases of a judicial character, the defendant's lawyer is sure—if possible—to charge death on the surgeon, rather than on the original wound, the treatment of wounds of the abdomen by laparotomy will doubtless be carefully weighed by the evidence in its favor, now slowly accumulating. To collect this evidence, and show the present sentiments of experienced surgeons on this mode of treatment, is the object of the discussion now opened.

DR. B. A. WATSON, of Jersey City, said that if it could be determined that the intestine was perforated laparotomy was demanded, as this procedure would limit fæcal extravasation and control hæmorrhage; that the difficulty was in making the diagnosis, and as this was not always possible, it should be remembered that the opening of the abdomen in gunshot wounds did not materially increase the danger. If the cavity was opened, perfect antiseptic precautions should be employed, and the cavity thoroughly cleansed. That it was not prudent always to wait until dangerous symptoms had developed before operating. The consent of the patient should be obtained, and the operation, if undertaken, should be thorough, and should include the removal of all albuminous fluids from the cavity and an accurate and exact examination made to determine fully the damage inflicted by the wound, and a perfect cleansing of the parts made.

DR. E. H. GREGORY, of St. Louis, said that the condition of the patient, rather than the character of the wound, should control the practice adopted; he waited until urgent symptoms had developed and plainly expressed a need for operative interference. Where the intestinal canal was undoubtedly opened, then the operation was always proper. He did not think that the presence of inflammation, the result of the injury, influenced unfavorably the result of operative interference, for able practitioners believed now that opening the cavity of the abdomen and thoroughly cleansing it with washes was good practice in acute peritonitis; he further stated that traumatic inflammation was limited and not diffused; that the wound from the injury and the wound from the operation would both produce local inflammatory process, and unless some other agent, possibly sepsis, intervened, the inflammation did not necessarily result fatally.

DR. J. B. HAMILTON, U. S. Marine Hospital Service, said that he believed dangerous symptoms did not always develop until death was imminent; that he would not wait for such signs, but where he believed the intestinal canal had been wounded he would proceed at once to an operation, without waiting for inflammation. He related a case which came under his observation, where a man suffered from a gunshot wound of the abdomen with perforation of the intestines, in which he waited for the development of urgent symptoms, and the patient died. Subsequently another case similar in character came under observation, and was subjected to immediate laparotomy, and in which eleven wounds were found in the small and two in the large intestines. This case recovered after the operation.

DR. H. O. MARCY, of Boston, thought that the hæmorrhage following a puncturing wound was often a concealed one, and that fæcal extravasation or hæmorrhage gave rise to septic infection and inflammation, and he considered the exploratory operation justifiable. Speaking of the sutures to be used in intestinal wounds, he said that fine chromatized catgut sutures were most applicable; that he had made excisions of the gut and united them by double lines of continuous sutures.

DR. D. W. YANDELL, of Louisville, remarked that some patients would get well under any plan of treatment; that he believed the operation should be done at once or not at all; that the size of the ball had but little to do with the demand for the operation, and further stated that, in his opinion, patients frequently died without the development of urgent inflammatory symptoms.

DR. R. A. KINLOCH, of South Carolina, stated that he believed he was the first man who opened the abdominal cavity and sutured the intestinal canal for gunshot wounds of the abdomen. He also claimed that he was the first to free the bowel from the adhesions at the site of the artificial anus and to reunite them. He thought fæcal extravasation was not a necessary consequence of penetrating bullet wounds, even where they traversed the intestinal canal, but that he could not believe, however, that traumatic inflammation was always limited, as it extended rapidly in the abdominal cavity, possibly as a result of septic inflammation.

DR. J. MCF. GASTON, of Georgia, said that much depended upon the ability to arrive at a clear diagnosis of the extent and nature of abdominal wounds preliminary to laparotomy. In punctured or gunshot wounds of the abdomen the doubt as to existing lesions of the intestinal canal may, in most instances, be resolved by passing two tubes through the opening, which should be enlarged if requisite for this purpose; one of which is connected with a Davidson's syringe, and of sufficient length that it may reach the most dependent portion of the abdominal cavity, leaving only the terminal opening; while the other, of corresponding proportions or somewhat larger, should have openings upon the sides for two or three inches at the lower end. A saline solution containing one ounce of the chloride of sodium to the quart of water, at a temperature of 100° F., should be thrown in and allowed to pass out continuously through the escape tube, so as to carry off any accumulation of blood or any fæcal extravasation. If the outward flow should be arrested by clogging of the fenestrated tube, it must be removed and cleared of obstructions, either by clots of blood or fæcal matter, when it is to be replaced and the process continued until the water returns free from admixture with the

contents of the abdominal cavity. The tube that connects with the syringe should then be removed, and the remaining fenestrated tube attached to the other extremity of the syringe, when, upon working it, a suction through the tube will remove any surplus fluid from the cavity of the abdomen.

While this process ought to remove either blood or the extravasated contents of the alimentary canal, the absence of the latter admixture in the fluid discharged cannot be relied upon for a final decision as to penetration of the intestinal wall, as the opening may be so small that the hole will be closed up by the natural contractility of the muscular tissue of its coats. But apart from the aid in diagnosis, this measure is advisable as a curative agency in removing sanguineous effusion; and this saline solution is not found to prove detrimental, but, on the contrary, salutary to the peritoneum.

In regard to awaiting the development of symptoms, as recommended by one of the speakers, after a diagnosis of intestinal perforation, there are examples of favorable results; but with the light before us, an exploratory opening of the abdomen is warrantable in any case presenting indications of a penetrating wound of the coats of the intestine. The speaker referred to two cases[23] of abdominal section in his personal experience, which terminated fatally from the delay of one day and three days respectively, during which peritonitis had become developed and constitutional symptoms supervened from the extravasation of pus in one, and the sanguineous effusion in the other. Hence, it was thought best to operate at the earliest practicable period after such injuries.

ON ELECTROLYSIS;

With Special Reference to its Trial in Inflammatory Products in the Female Pelvis.

A Preliminary Report.[1]

BY JAMES HENDRIE LLOYD, A.M., M.D.,

INSTRUCTOR IN ELECTRO-THERAPEUTICS IN THE UNIVERSITY OF PENNSYLVANIA.

During the past Spring the writer began a series of exact clinical observations upon electrolysis in the human body. The object was to determine: (1) the utility of the process at all; (2) the diseases in which it was applicable and useful; (3) the best methods of applying it with precision; (4) the current strength—*i. e.*, the greatest potency with the least pain and damage. The observations were intended to be entirely clinical, because (1) it was considered that the theory of electrolysis was sufficiently established without further experimental proof, and (2) it did not appear, after some reflection, how experiments on other tissues, or the lower animals, would give us any facts which could not be as well observed in the diseased tissues of the human body. The first disappointment met with was the difficulty of obtaining a sufficient number and variety of clinical cases This was, no doubt, due largely to the summer vacation, when all medical work in this city suffers a great hiatus. This will explain the fact that this paper is preliminary to a report which the writer hopes to make in the future, and to have as complete as possible; and must constitute an apology for trespassing upon your time with much less material than it was his original intention to present. The cases presented below, if few in number, have at least been thoroughly observed. Dr. I. P. Willets gave much assistance in this work.

It may be well to remind you that electrolysis is the breaking up of a fluid, or substances held in solution, into its constituents, by the passage through it of an electric current. Thus, water is resolved into hydrogen and oxygen, as may be readily observed upon passing a mild current through a tumbler of this fluid. In compound fluids, or salts, the acids seek the positive while the alkaline bases go to the negative. The subsequent chemical actions of these acids and alkalies are just the same as would be the case if they were introduced from without, and constitute the secondary actions of electrolysis. These changes are in exact quantitative relation to the strength and duration of the current—that is to say, with so much current-strength continued a certain time (or, technically with so many *coulombs* of electricity), just so much hydrogen, oxygen, or whatever the simple atoms or compound radicle may be, will be liberated. In such a simple fluid as water the figures of this problem are exactly known, but in such a complex, organized series of tissues and fluids as exist in the human body (while doubtless the changes are just as constant and according to law), the figures are not known, and may never be. It is, of course, understood that the galvanic current is here referred to, as induction-currents are without practical electrolytic effects. In addition to these true electrolytic effects there are other effects, both physical and physiological, which are important to be understood. First of these in importance is the so-called "electrical osmosis," formerly called the cataphoric action of electricity. Dr. Amory, in his recent work on Electrolysis, lays great stress upon this action. When an electric current is passed through two fluids separated by a porous septum the fluid itself will pass in the same direction as the current, *i. e.*, from the positive to the negative. This is demonstrated outside of the human body. Dr. Amory speculates that this nutrition is affected, the parts being literally robbed of their pabulum by the osmosis, or flow of nutrient fluids toward the negative pole. But, theory aside, we have an array of clinical facts—fortunately accumulating—that there is a decided resolvent action in the electric current, both upon normal and abnormal tissue. This may, or may not, be strictly according to the known facts of electrolysis or osmosis. It is probably partly because of them, and partly because of other factors regulating the vascularity and nutrition of the parts, which are but little understood. The chief observers of exact facts have been Cinicelli, who studied aneurisms; Dixon Mann, who studied the quality and

[23] Reports of these cases will be found in the Southern Medical Record, Jan. 20, 1885, and in the Medical and Surgical Reporter, June 12, 1886.

[1] Read before the Philadelphia County Medical Society, October 27, 1886.

quantity of clots formed in blood by an electric current; Duncan, who has cured many cases of nævus by galvano-puncture; and Fox and Hardaway, who have removed supernumerary hairs by the current. In addition, we have Newman and Bruce Clark, who report, especially the latter, such candid and exact details of electrolysis in the cure of stricture, that we are scarcely permitted to doubt; Mundé, who empirically and without sufficient detail, reports success in inflammatory products in the female pelvis; Engelmann, who has removed a uterine fibroid with very strong currents; Kelsey, who has cured hæmorrhoids, and Reeve, who uses electricity as a reliable emmenagogue.

Conditions of Observations.—The series of cases upon which this paper is based was chosen because of the comparative ease of observation (most of the phenomena being readily accessible), and, also, because of the importance and general prevalence of inflammatory, vascular, neuralgic and functional lesions in these parts. These cases all had a history of cellulitis, followed, probably, by the state of relaxed circulation so well described by Emmet, and characterized still further by neuralgic pains in loins, abdomen, ovaries and limbs, while the menstrual epoch was usually deranged—dysmenorrhœa being especially prevalent, with leucorrhæal discharge in the interim. Touch revealed in all these cases more or less fibro-plastic deposit, causing pain on pressure and more or less fixation of the womb. The *disadvantages* of this series of cases were, chiefly, that the application of electricity had to be made through mucous membrane (which, undoubtedly, must diffuse some of the current to surrounding parts), that some of the most urgent symptoms were subjective (and, therefore, not always reliable guides), and, finally, that the vascular condition would vary from day to day or week to week, and tend to confuse the observation of the permanent effects, if any, upon the adventitious products.

The Method.—The patients were put in the dorsal position, and, first, the negative electrode was introduced into the vagina and well against the point of apparent greatest deposit. This negative electrode was at first cylindrical in form, about 1½ inches long and ½ of an inch in diameter, nickel-plated and fastened upon a flexible insulated stem about 8 inches long. The nickel-plated end was covered with absorbent cotton thoroughly soaked in warm water. Later, the cylindrical form was substituted by a small, olive-shaped electrode, also nickel-plated and covered with absorbent cotton; this was done in order to concentrate the current more effectually. The circuit was completed by applying a large flat sponge positive electrode to the abdomen. The position of this electrode was changed at times, according to circumstances; where there was much ovarian pain, it was put over the ovary; where there was lumbar pain, over the lumbar region, etc. The polarity was never changed. The cells used were the blue-stone cell, known as the Siemens-Holske modification of the Daniel. The number of cells was not usually noted in the reports, as the current strength was taken entirely by a galvanometer, which was kept in circuits as desired. This galvanometer was made by Flemming, and was guaranteed by him to be an accurate clinical instrument. It is vertical, graduated in milliampères, and patterned, in the main, after the Hirschmann instrument. The lowest strength used in these cases was 6 milliampères, the greatest strength was 24 milliampères. These extremes were used only occasionally—the greatest strength, in fact, but once, and then inadvertently and with the effect of cauterizing the mucous membrane. The average strength used was about 14 milliampères. The duration of treatment was almost invariably 10 minutes; in some exceptional instances the treatment was continued to 15 minutes. The vaginal electrode was occasionally shifted about or passed, firmly pressed upon the mucous membrane, from one side of the vagina to the other. The *immediate* effects of these applications upon the patients were almost *nil*. No complaints were made of pain, except by one patient in whom there existed almost a vaginismus, and who suffered from the introduction of the instrument rather than from the current. Even in the instance when the mucous membrane was destroyed by a too powerful current, no complaint was made of pain, and, in fact, the accident was not discovered until the following day.

These cases were kindly sent by Dr. Wm. L. Taylor, from the Gynæcological Dispensary of the University Hospital, and the treatment was conducted in the Nervous dispensary.

Case 1.—C. S., 46, married; three children, youngest 20 years. Complains of metrorrhagia. Treatment: February 23, 1884. Slight dilatation of cervix, and endometrium curetted, with removal of granulations. Ergot, etc.

August 20, 1885. Returns, complaining of "cramps in bowels." Some congestion of uterus, with slight tenderness on pressure.

April 20, 1886. Returns after attack of peritonitis (cause unknown); was sick for a couple of weeks. Touch: Cervix undergoing absorption; fundus anteflexed and fixed; tenderness and enlargement posteriorly and to left of body.

April 24. Treatment was begun in the manner related above, and continued with two applications per week. The greatest current strength attained was 18 milliampères, from thirty cells (which were not at their best at that time). There were twenty-two applications in all. After five applications, the patient reported that she was menstruating, the first catamenial show in eight months. After eight applications, the patient reported, and continued to report, her subjective symptoms much improved, *i. e.*, the neuralgic and bearing-down sensations. After the ninth application, Dr. Taylor made a careful examination, and found that actual absorption had taken place, and that the uterus was more movable. This absorption was confirmed by another careful examination, made after the twelfth application. The only set back was caused by the patient doing some heavy domestic labor after the fifteenth application. Until the last application, however, there was some complaint of pain. Treatment was suspended by patient leaving the city.

Case 2.—A. S. 31, married; sterile; puberty at 17. Always had inward weakness, with dysmenorrhœa, since puberty. One year ago she had an attack of inflammation. Since then she has had bloody leucorrhœa, severe pain in each ovarian region, and in hypogastrium particularly; sense of great weight and bearing down. Touch: Uterus firmly fixed by inflammatory lymph; fundus anteflexed; mass extremely tender. Treatment began in same manner and frequency as in the preceding case. The external electrode—large sponge anode—was frequently applied over the lumbar region in this patient, because lumbar pains were among her most distressing symptoms. This patient has had, to this date, twenty-one applications, averaging about 14 milliampères, continued ten minutes. After four applications, Dr. Taylor reported her condition unchanged. After six applications, the patient said she was much relieved of pain in her back. After eight applications, she had a menstrual flow, which was more free and less painful at the commencement, but became as painful as ever toward the close. The usual cramp-like pains were not as bad as before treatment. After ten applications, Dr. Taylor made another examination, and reported slight improvement, *i. e.*, the parts were more pliant and less painful. After the twelfth application, she had a severe dysenteric attack, with much abdominal pain, which left the left ovary tender and sore. We note evidence of much thickening between cervix and left vaginal wall. The patient, of her own accord, absented herself for about one month at this time. When she came back, she reported that her disagreeable subjective symptoms, pain and bearing down, had returned during the suspension of treatment. After the fifteenth application, she had apparently suffered from an acute, circumscribed peritonitis (or cellulitis), which caused some increase of deposit. She still said, however, that she had less pain. At the sixteenth application, a much stronger current was passed than formerly. This was due to the fact that our cells had been overhauled and supplied with new zincs, thus increasing their electro-motive force, and to the omission to observe with due care the record of the galvanometer. We had, moreover, no rule by which to limit current strength, so that when we discovered the increase (24 milliampères), it was purposely continued for some minutes. The patient made no complaint of pain at the time, but presented herself next day with the remark that she thought "something was wrong." Examination then revealed a place, the size of a half-dollar, upon which the mucous membrane had been destroyed, leaving a sloughing, ulcerated wound. Treatment was suspended, and after a week the patient had entirely recovered without any untoward symptoms. This patient continues under treatment. There has not been as much improvement in her condition as in the former case, if we regard the absorption of lymph. There has been decided improvement in her symptoms of pain.

Case 3.—L. M., æt. 29, married; one child, 7 years. Four years ago had an attack of cellulitis lasting six weeks. Since then has had aching in back and limbs, pain in hypogastrium—worse at menstrual periods: menses regular in time and last one week; leucorrhœa; vertical pain. Touch: Cervix low down. Fundus anterior and fixed. Deposit of lymph posterior to uterus.

April 24. Treatment begun as in former cases. This patient had a total of seventeen applications. The current strength on some occasions was allowed to run up to 18 milliampères; the average used, however, was about 14. The number of cells required for this strength would vary from twenty-five to thirty; but these cells at this time were not in their greatest activity. After four applications Dr. Taylor reported actual condition unchanged. There was ovarian tenderness; on this account the anode was usually applied over the left ovary. The history of this case can be briefly summed up as one of continued improvement. Neuralgic pains, especially, yielded, even more than the deposits, but toward the last it was very evident to touch that the parts were softer and more pliant. The patient finally said that she "had not a pain or an ache," and discontinued treatment of her own accord. This case was not as bad from the start as any of the others here reported.

Case 4.—C. B., æt 28; married; eight years; puberty at 14; always had severe dysmenorrhœa. This has been increasing in severity. Four or five years ago had an attack of pelvic cellulitis. Since then she had had sharp pain in region of right ovary, pressure on bladder, and sensation of weight in pelvis. Touch: Cervix of uterus low down in hollow of sacrum; fundus acutely anteflexed. In each ovarian region there is great tenderness, with deposit of lymph; also posterior to uterus (which is firmly fixed) there is a deposit, larger to the left.

April 24, 1886. Treatment commenced as in other cases. There have been to date, twenty-eight applications. This patient has been much more sensitive than the others. She has a condition approaching to vaginismus, the whole vaginal tract appearing to be hypersensitive. In consequence, an average less current strength has been used than in the others; this average would be about 13 milliampères. After three applications, had a menstrual flow more painful than usual. Changes in this case were slow and mainly in the direction of less pain and sensitiveness. After thirteen applications she said that she always suffered some pain after each treatment, which pain lasted several hours, but was not severe enough to be a serious matter. There were, no doubt, some hysterical symptoms in this patient. Her menstrual periods continued very painful for a long time, and she insisted that she always had a febrile reaction with them. After thirteen applications, the evidence of cellulitic deposit still existed. After twenty-four applications, Dr. Taylor examined patient, and said that the deposits were much softened and almost gone. He considered patient much improved. This patient is still under treatment. She still has painful periods, but has much less vaginal and ovarian sensitiveness than formerly. This case was more obstinate and discouraging at first than any of the others, but can be claimed, at last, to have yielded to treatment. The evidence of absorption of deposits in this case seems to me to be beyond dispute.

Conclusions and Inferences.—The great objection, in my mind, to the theory of true electrolysis in these cases is the resistance of the mucous membrane and the diffusion of the current; in other words, the weakening and loss of current strength before it actually reaches the neoplasm. This objection does not hold when galvano-puncture is used, as in aneurism and the cure of moles and nævi; also in the removal of hairs, or in subcutaneous treatment of goitre, as the writer has himself practiced it. But in strictures of the male urethra, and in these cases of cellulitic deposit in the female pelvis, I do not see how galvano-puncture could be well practiced, certainly not safely in the great majority of cases. However, in the light of clinical results, we are justified in continuing a procedure even if it does not harmonize with some theoretical data. I have always insisted upon the necessity of measuring the current strength, if we design to place our observations on as scientific a basis as possible, and as far removed from the haphazard empiricism which is too characteristic of electro-therapeutics. Without a galvanometer serious damage might have been done in case 2. Without it, moreover, the operator is exposed to a number of other accidents, and, in fact, can never know what he is about. The patients' feelings in these cases were no gauge. I have known the current to be broken by the slipping out of the cord at the binding post, or interrupted by inadvertently turning it through a rheostat. But the most common cause of error is the varying resistance of the human body, and the difference, in this respect, of one patient from another. This is illustrated in the above cases, as follows: On the same day the current from a certain number of cells gave but 6 milliampères in C. B., but gave 14 in A. S. This great difference I was unable to explain, but quite able to overcome. Finally, I have often thought that there might be some analogy between the action of galvanism, under these circumstances, and counter-irritation. Any one who has felt the persistent soreness produced on the skin of the back of the hand by a strong current, with a tendency to desquamation, or even vesication, could readily believe in this resemblance. We have no very good explanation how counter-irritation acts, but still we use it successfully to promote absorption under a great variety of conditions. It seems possible that a strong current (and these currents were as strong as could be well borne) might produce counter-irritation upon the vaginal mucous membrany and promote absorption of inflammatory products within.

The procedure in intra-vaginal galvanism is no doubt, open to the objection of being tedious, and requiring frequent repetition, which is in a measure compensated by its being painless and less disagreeable to the patient than some other methods of treatment; while it seems to offer more relief to some of the symptoms than other plans. Among the special effects noted in these cases was the promotion of menstruation. The current-strength used did not tend to re-excite inflammation except in case 2, in which case, however, the evidence was not entirely conclusive.

HOW THE ILIAC ARTERIES ACT AS VALVES UPON THE VENOUS FLOW INTO THE INFERIOR VENA CAVA.[1]

BY CHARLES A. TODD, M.D.,
OF ST. LOUIS, MO.

It is a familiar dictum in anatomy that the veins in the great cavities of the body have no valves. In the cranial and thoracic cavities, this deficiency would not seem to be detrimental. The blood readily drains away from the head through numerous channels. In the thorax the venous trunks are comparatively short, and are, besides, directly subject to the suction action of the respiratory movements of the chest walls. In the abdomen, on the contrary, we have difficulties affecting the flow of blood through the great veins. By reason of the constant patency of the hepatic veins and their opening into the cava just as it pierces the diaphragm, their contents are immediately within the influence of the thoracic suction, and the freedom of the liver circulation is thereby insured; of course, the portal flow is thus facilitated. But between the diaphragm at the opening for the cava and the commencement of that vein on the fourth lumbar vertebra, there is a great column of blood formed mainly by converging streams coming from the pelvis and lower extremities, which must ascend against gravity and apparently under generally unfavorable conditions. Under such circumstances we should expect that congestions of the lower extremities would be extremely common, through the comparative inertia of the blood in the inferior cava and iliac veins. Upon close examination, however, of the anatomy of the region that naturally would be the site of greatest disturbance—the commencement of the inferior vena cava—we find an arrangement of the parts that suggests a solution of the problem.

It will be remembered that the ascending vena cava lies to the right of the abdominal aorta, while its parent trunks, the common iliac veins, both lie to the left of the right common iliac artery, and pass under it to reach the cava. The common iliac veins, therefore, at one point lie between the right common iliac artery and the bone; the vessels being bound together by the firm pelvic fascia. Now this arrangement, I believe, is by no means an indifferent one, a mere survival of anatomical conditions outgrown in the course of evolution, but one that accomplishes a most important end, viz., to supply the place of a valve in the great abdominal vein,—and just where such a support is most needed,—at the bottom of the column of blood and at the mouths of its primary branches, the common iliacs. The valve action is to be found in the arterial pulse: The artery being bound down by a strong fascia, in its pulsations must compress the vein, thereby more or less completely cutting off temporarily the venous current. In this manner the blood column above is supported, while the stream below is relieved, a more steady onward flow resulting.

I have made vivisections upon dogs to demonstrate

[1] Read in the Section on Surgery at the Thirty-Seventh Annual Meeting of the American Medical Association.

this valve action. After opening the abdomen and sufficiently displacing the parts with the hand to allow the finger to rest on the vessels, the iliac vein below the site of the arterial crossing could be felt to swell synchronously with the pulse. Other more elaborate experiments were not successful. A manometer, consisting of a hollow cylinder of thinnest rubber, one end being closed, the other slipped over a glass tube bent at a right angle, was passed up the femoral vein until the guide could be felt in the cava. This apparatus being fixed in position, was filled with water and the changes in its level noted.

The small calibre of the vessels, the influence of the respiratory movements, and probably other causes, deprived these experiments of any positive value for or against. In the human cadaver I have injected the femoral vein with water and clearly demonstrated the fact that the iliac veins were strapped down, so to speak, by the common iliac arteries just below their point of union with the cava. Elsewhere we find similar disposition of vessels. The lesser azygos passes under the thoracic aorta just before opening into the great azygos. I have seen it markedly dilated at this point.

The thoracic duct must be compressed during the pulsation of the aorta, as the two lie together in the osseo-fibrous foramen of the diaphragm. I have, indeed, read in some work on physiology, that fluctuations in the escape of fluid from that duct had been observed, that justified a belief in such behavior of the aorta.

MEDICAL PROGRESS.

UNIQUE CASE OF INJURY TO THE EAR.—DR. LOUIS J. LAUTENBACH reported the following interesting case at the meeting of the Philadelphia County Medical Society, on October 20, 1886.

J. H., aged 36, salesman, came to me February 18, last, on account of a ringing, a feeling of fulness and deafness of the right ear, which he said had come on the previous afternoon. Up to this time, according to his statement, his ears had been of equal hearing power, and he had noticed no defect nor suffered any inconvenience from either ear. On the afternoon of the 17th, while walking along the railroad, the New York express, going in an opposite direction, went past him, his right side being toward the train, when he suddenly experienced a sharp pain in the right ear, which was accompanied by deafness, a marked degree of ringing and fulness being experienced immediately. The pain soon disappeared, but the dulness, ringing and fulness were present when he presented himself to me.

When examined he had no pain, but yet there was slight tenderness occasioned by pressing on the tragus. The watch (of which the average hearing distance is 52 inches) was heard at 11 inches with the right ear and at 3½ inches with the left. The tuning fork aerially was heard equally in the two ears, but by bone conduction it was heard very much more loudly in the left ear. The anterior wall of the meatus was found to be quite red, and at about three-eighths of an inch within the tragus a stiff, hair-like body was seen to be inserted; following the course of this body inward it was found to perforate the membrana tympani immediately below and very slightly posterior to the insertion of the manubrium of the malleus. The awn, or beard of wheat (for this is what subsequently the foreign body was found to be), was wedged between the inner wall of the tympanum and the wall of the meatus, being bent like a bow. The membrane was decidedly concave outward, it was tense, it was very much congested, particularly along the handle. The outer end of the wheat beard was detached from the wall of the meatus, and by the forceps was withdrawn from the tympanum, requiring an appreciable amount of force—much more than I had expected to exert. As it was withdrawn, a little pus exuded, and this was followed by a drop or two of serous fluid. The hearing of the ear was now reduced to five inches, but the feeling of fulness, of dulness of hearing, and the ringing, entirely ceased. The left ear being examined showed marked evidences of middle ear catarrh. The tuning fork, by aerial conduction, showed no change, but, by bone conduction, it was heard only slightly (instead of markedly, as before) better in the left ear.

The foreign body was a piece of the awn, or beard, of a wheat grain, and was 24 mm. in length; its thick, flat end had penetrated the membrane, and its teeth, or saw-like points, with which it abounds, were directed forward; this explains the force required for its removal, as well as the reason why it lodged so readily in the wall of the meatus. Admitting that there was occasioned by the foreign body an increased hearing distance, it is an interesting question: How was it produced? It may be that the pressure exerted inwardly was sufficient to bring the stapes into a more nearly normal position, thus improving the hearing; the pressure being removed, the hearing diminishing. It is, however, far more probable that the ears were of unequal value before the accident, but that the patient took no note of the difference.

CHLORIDE OF METHYL IN TRIGEMINAL NEURALGIAS.—No agent yet used for the relief of trigeminal neuralgias equals in promptness and efficiency chloride of methyl sprayed upon the parts. The writer has for many years suffered with occasional attacks of neuralgia of the trifacial, the attack being generally confined to the left infra-orbital though sometimes affecting the frontal nerves. Everything by turns has been tried, and though many remedies have afforded temporary relief none of them lasted long, until the method of spraying with fluids of an exceedingly low boiling point was suggested. Ether, and rhigoline were found prompt and efficient, cutting short an attack and giving long periods of rest. Recently methyl chloride was tried, the result being an instaneous suppression of pain, and thus far there has been no return. Methyl chloride is a haloid derivative of the paraffines obtained by distilling to-

gether sulphuric acid, common salt and methyl alcohol (wood spirit) Under ordinary circumstances it is a colorless gas which condenses under pressure into a fluid with an extremely low boiling point. The chemical, as used by the writer, was manufactured by himself, as it is not yet in the market. Indeed, the difficulties in the way of preparing and using it (the extremely low temperature at which the fluid returns to the gaseous state being the chief difficulty) will prevent the common use of the drug until some special means are devised for its preparation, preservation and application.—*St. Louis Med. and Surg. Jour.*, Nov., 1886.

THE PHYSIOLOGICAL ACTION OF MENTHOL.—DR. GOLDSCHEIDER, at a meeting on April 9, of the Physiological Society of Berlin, discussed the action of menthol on the sensory nerves. It was well known that it produced on the skin a sensation of cold, which was commonly ascribed to evaporation. On the other hand, the same sensation, when produced in the mouth by solutions containing menthol or peppermint, was explained by a supposed astringent effect. Dr. Goldscheider had come to the conclusion that neither of these explanations was correct. He made his experiments with a solution of menthol in lanolin, which he rubbed into circumscribed regions of the skin. After the rubbing, the thermometer showed, in all such places, an increase of temperature to the extent of 2° Cent., notwithstanding the marked sense of cold produced. The hypothesis of evaporation was excluded by the fact that the feeling of cold was no less marked when the part rubbed was covered with a watch-glass, and could, therefore, be produced only by direct stimulation of the nerves of sensation of cold. Again, if of two corresponding places on the forehead, where these nerves are most abundant, one were rubbed with the menthol ointment, and the other not, bodies which previously had caused no particular sensation would be felt as cold on the former spot, but not on the latter. Dr. Goldscheider, observing that while some regions, as the forehead, were especially sensitive to cold, others, as the elbow and the volar side of the wrist, were so to heat, found that the inunction of these with menthol produced a sensation of warmth, though less striking than that of cold in the former regions; and he called attention to the recent communication of Professor Herzen, on the precisely analogous results of pressure on the nerve trunks in these regions respectively. He therefore concluded that the sensations in some places of cold, and in other places of heat, produced by menthol, were purely subjective and consequent on the direct stimulation of the special nerves of temperature, those usually cognizant of cold being far more sensitive to its influence than were those adapted to receive impressions of higher temperatures.—*British Med. Jour.*, Aug. 21, 1886.

ELECTROLYSIS IN LUPUS VULGARIS.—GÄRTNER and LUSTGARTEN have treated ten cases of lupus by electrolysis with good results. They give an account of their method in the *Wiener med. Wochenschrift*, Nos. 27 and 28, 1886. Instead of employing the common method of puncturing the skin with steel needles attached to the negative pole of a galvanic battery, they use a flat electrode consisting of a silver plate slightly curved and set in a hard-rubber ring. The rubber ring is employed to prevent the edge of the plate from acting on the skin. The part to be operated on is washed with soap. A current of five to eight milliampères is allowed to flow through the part for ten minutes. The electrolytic action is confined to the diseased points, the cicatricial tissue or the sound skin between the lupus nodules being almost always unaffected. The lupus nodules, on the other hand, are excoriated and swollen, and give vent to a clear, watery, sticky fluid. After a few hours they sink in and become covered with a brown, leathery scab. The part should be dressed with iodoform and the scab allowed to fall, which it does in from eight to fourteen days. The result is a flexible pigmented cicatrix. The procedure is painless. The operation is indicated by the superficial location of the disease. It may be practiced both in the ulcerating and non-ulcerating forms.—*New York Medical Journal*, Nov. 6, 1886.

QUININE AND OIL OF TURPENTINE IN MALIGNANT PUSTULE.—DR. DON F. RIVAS describes in *La Union de las Ciencias Médicas* some cases of malignant pustule which were rapidly cured by the application of a paste composed of quinine and oil of turpentine. One of the cases was that of a shepherd, in whose flock the disease had manifested itself. He was stung by a mosquito on the forehead, and two hours afterwards the head and neck were extremely œdematous. The paste was applied and the pain and swelling shortly diminished. A couple of days later a large quantity of sanguinolent fluid was discharged, and by the fourth day the man was quite well. Another shepherd of the same flock, who was similarly affected, made use of some of his colleague's paste without consulting a doctor, and was also cured in four days. A third case was that of a woman who had a malignant pustule on the hand, which was unaffected by various remedies which were applied, but on the application of the quinine and turpentine paste the severe pain ceased almost immediately, and the œdema rapidly diminished, the patient being restored to health in four days.—*Lancet*, Oct. 16, 1886.

ICHTHYOL IN RHEUMATISM.—DR. BUBELIR has been using ichthyol in rheumatic cases, both of an acute and chronic type, with success. It is applied, after careful washing and drying of the affected part, either in the crude form or as a compound sulphate of ichthyol and soda or ammonia, and at the same time is given internally in the form of drops or pills, the dose being from 15 to 25 drops of the sulphate of ichthyol and ammonia, or a similar quantity made up into from six to twelve pills. In all cases the pain was relieved, but the swelling was not affected, and the author thinks the drug must only be used in the expectation of relieving pain. He says that where the external applications are for a long time, or without the precautions of washing, a pustular eruption may occur.—*Lancet*, Oct., 1886.

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THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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LAPAROTOMY AS A DIAGNOSTIC RESOURCE.

At the meeting of the New York County Medical Association, on November 15, DR. T. GAILLARD THOMAS read his first paper before the Association, and, coming from such a source, with a subject of such marked significance at the present time, "Laparotomy as a Diagnostic Resource," it will naturally attract much attention. Empiricism, Dr. Thomas said at the outset, has steadily given away before logical deduction; the dogmas of the schools and the dicta of the masters have gone down before clinical research and experimental demonstration; and the theorist of the closet and the bookworm of the library have been replaced by the chemist, the anatomist, and the microscopist.

The modern development of the art of diagnosis has been accomplished by the subordination of theoretical methods of exploration and investigation to those which were purely physical; but throughout the whole domain of surgery there is no field in which diagnosis is more surrounded by difficulties than that of abdominal neoplasms. Formerly the diagnosis of abdominal tumors was allowed to rest upon deductions capable of being drawn from rational and physical methods, the latter of which were limited by the abdominal walls without and the pelvic roof within; but to-day surgeons devoting themselves to this department of our art are fully agreed as to the propriety of opening the abdominal walls for the purpose of exploring the viscera fully by touch, and to a limited extent by sight. After an experience yielded by seven or eight hundred cases, approximately, of laparotomy for various causes, extending over a period of twenty-three years, Dr. Thomas feels that he can say with truth that he has never once regretted opening the abdomen, and that he has in a dozen cases, at least, deeply regretted not having done so. He thinks it certain that in the future explorative abdominal incision will become the rule in all cases of the following conditions which do not yield to medical means, and concerning the etiology of which there is great doubt: 1, wounds and injuries of the abdominal viscera; 2, intestinal obstructions; 3, the presence of stones in the bladder or kidneys; 4, the accumulation of blood, pus, or serous fluid from any source; 5, the existence of a neoplasm in any part of the abdomen; 6, the occurrence of serious organic changes in certain of the viscera of the abdomen, such as the kidneys, the spleen, the uterus, the Fallopian tubes, or the ovaries; 7, ectopic gestation.

Even under the most favorable circumstances, the most skilful diagnostician is constantly likely to make errors without its aid; and hence it is that explorative incision is peculiarly valuable. In order to better convey his views and give his experience upon this subject, he mentions first some cases in which he had to regret non-interference, and then others in which more active measures produced happier results. The first case related was one of intestinal obstruction which occurred seventeen years ago, in which it was decided not to operate. The patient died, and at the autopsy a loop of intestine was found constricted by a string of false membrane, the result, probably, of some old peritonitis, which could at once have been removed by snipping with a pair of scissors. The second case was one of large uterine fibroid, which caused fatal exhaustion by its pressure on the abdominal viscera. The question of exploratory laparotomy was decided in the negative, and the patient died; but at the autopsy it was found that the tumor, which weighed forty pounds, was entirely unattached in the peritoneal cavity, and connected with the uterus by quite a slender pedicle; so that removal would have been easy. The third case was that of a lady who had a very large abdominal tumor, which was apparently solid. Consequently operative interference was declined; but when she died, about a year afterwards, it was found that the neoplasm was a multilocular ovarian tumor, entirely free from adhesions, with a small pedicle, and which could have been removed with every prospect of success. The reason for the obscurity of the diagnosis in this case was, that the tumor was composed of innumerable small cysts, the walls of which were thick, and the fluid within them colloid. Case fourth was another one of intestinal obstruction, in which it was decided not to operate, and at the autopsy it was found that

the transverse colon at its middle was distended with hardened fæcal matter held in an indissoluble mass by a quantity of hay. It is certain that upon abdominal section this would have been readily discovered, and it is probable that by a process of kneading it could have been dislodged and pressed on towards the rectum.

He mentions an obscure case which proved to be one of extra-uterine pregnancy, in which no operation was performed, and said in defense that almost all of this variety of his cases occurred fifteen or twenty years ago; which time carries us back into the ancient history of the subject. Few such cases occur to him now, for the reason that he is a strong advocate of explorative incision as a diagnostic resource. He mentions a few out of the very large number of cases in his later experience which illustrate the brilliant results which commonly attend upon this procedure. The first was one of supposed large uterine tumor with ascites, for which the patient had been repeatedly tapped, until she was in an exhausted condition. Laparotomy was performed, and he found that the fluid was not the result of ascites, but was ovarian fluid, which poured out from a ruptured ovarian cyst, which in its collapsed state occupied the pelvic cavity, giving rise to the belief that it was a fibroid. The operation for removal of the sac was simple, and the patient made a rapid recovery. The second was a case of hæmato-salpinx, in which the excessive distension of the Fallopian tubes gave rise to a sensation of solidity which made the diagnosis before operation very obscure. Both tubes and their corresponding ovaries were removed, and the patient was entirely cured. The third case was quoted as illustrating the fact that cases of abdominal tumor are sometimes utterly beyond the realm of diagnosis until the cavity is opened. For years this patient had a firm tumor behind the uterus, when suddenly she became almost collapsed and suffered greatly from pain in the tumor, which nearly doubled in size in a day or two. Laparotomy was performed, and a large blood-cyst was emptied from Douglas's cul-de-sac; after which he shelled out the skull of a six months fœtus. The patient died in ten days from cardiac thrombosis. The fourth case was one of intestinal obstruction caused, as was found on opening the abdomen, by a mass of malignant growth encircling a considerable portion of the large intestine. The patient died about a month after the operation.

There is one class of cases in which in his hands, Dr. Thomas says, explorative incision has yielded particularly brilliant results, viz.: cases of ascites in the female. In this connection he makes the special point that some cases of excessive ascites, which by repeated tappings prove fatal, are due to insignificant uterine or ovarian tumors, which are too small for recognition unless specially and carefully looked for, and the removal of which relieves the fluid accumulation which, by its exhausting influence, destroys life. These tumors are sometimes no larger than a small apple, and cannot be recognized except by the careful examination of an expert. In stout women, and often even in thin ones, they cannot be discerned at all after accumulation of ascitic fluid has taken place. Moreover, in some cases even where a tumor in the pelvis as large as a cocoanut coexists with ascites, no connection between the two pathological conditions, as cause and effect, is ordinarily traced by the medical attendant. Should this be the case, should the existence of the neoplasm be not detected, or should the malign influence not be appreciated even when its presence has been diagnosticated, the physician will probably endeavor to cause absorption by pressing into action the three emunctories, the skin, the kidneys and the bowels. This usually fails, and if it does not—the cause of the symptom remaining after the symptom itself has been removed—frequent resort must be had to the plan, which in time impairs nutrition and exhausts the vital energies. If, on the other hand, tapping or aspiration be employed, the beginning of the end soon shows itself, and it becomes merely a question of time how long the system of the patient will bear the exhausting drain to which it is exposed. Dr. Thomas has met with a number of cases in which he completely cured aggravated cases of ascites, after tapping had been repeatedly resorted to, and after all hope of recovery had been given up. He feels justified in assuming the position that in cases of ascites in the female, before the patient is relegated to the usual practice of repeated tapping, with its universally bad results as to cure, the most thorough investigation in regard to the possible existence of small neoplasms as important pathological factors should be made; and if signs of their existence be obtained, explorative incision should be made, as a forlorn hope that relief might be obtained.

In closing his valuable paper Dr. Thomas refers to two practical points. The first is the curious fact that in certain cases of abdominal incision, in which diagnosis alone is practicable, and others in which removal of the tubes and ovaries is impossible, great improvement sometimes results to the patient's general and local condition from the explorative effort alone. The second point is the necessity for certain

rules which should be observed in the performance of this simple surgical procedure: 1. Every explorative incision should be made under the strictest antiseptic precautions. As to strict cleanliness, all are agreed; if antiseptics of chemical character are valueless, they at least, in all probability, do no harm. While the question as to their utility is still *sub judice*, give the patient the benefit of the doubt, and employ them. 2. Always employ an anæsthetic. 3. Always make an incision which will admit the whole hand; one which will admit two fingers only is hardly warrantable. If possible, let but one man's hand be passed into the abdominal cavity. 4. Never hurry an explorative incision, but never prolong one unnecessarily. Let discussion as to diagnosis occur after the peritoneum is closed; not while it is open.

THE ABUSE OF MEDICAL CHARITIES.

Several months ago Mr. James Erskine, of Glasgow, read an interesting paper on this subject, it being more particularly concerned with the abuse of medical charities in his city. But this abuse is not confined to Glasgow, or to foreign cities: almost any dispensary physician in this country who keeps his eyes open in his consulting room and at the dispensary will soon see that there is a fearful abuse of medical charities by people who are not only able to pay for advice and treatment, but who would never think, in all probability, of asking charity in any other way. Even those dispensaries over the doors of which the sign reads, "The poor treated free" are abused by impostors; what then must be the case when the sign reads "Treatment free," without a word as to the poor?

It may perhaps be useless to inquire into the various motives of the people who ask such charity when they are unworthy of it. But one thing is certain: no class of men is so philanthropic and benevolent as medical men; and while they, as a rule, are at all times ready to give the benefit of their skill and experience to the deserving poor, it is time that they make the public understand that they cannot do more public charitable work for nothing than all the other professions put together, and that they cannot give this time and work to undeserving people. Not only should it be publicly stated that a dispensary is only for the poor, who are unable to pay for medical advice, but the circumstances of patients should be inquired into. This is done at the London Hospital and other London institutions; and Mr. Nixon, the Governor of the London Hospital, said about a year ago that this system of inquiry excluded about 50 per cent. of the applicants, especially in the special departments. At a recent meeting of the Manchester and Salford District Provident Society, Mr. John Watts said that they "started out with the knowledge that of the applicants for medical relief at the various hospitals and dispensaries of the city, there were 42½ per cent. who could, if provident dispensaries had existed, have paid provident dispensary fees, and therefore been independent of medical charity. After ten years of their work, that percentage, instead of 42½, was 13½. Thus, directly as dispensaries treat unworthy patients free they are robbing the medical profession of a certain portion of legitimate income. In the City of Chicago there is at least one dispensary, within a stone's throw of two or three physicians, which treats free all who apply. The public have an idea that dispensaries employ physicians of exceptional skill; and is it to be supposed that certain classes of this public will pay for what they can get next door for nothing? As thus carried on a dispensary is an outrage on the profession. Mr. Erskine's paper may be found in the *Glasgow Medical Journal* of November.

But neither Mr. Erskine's paper nor the foregoing remarks direct attention to some of the causes that have exerted great influence in developing the rapid increase of Free Dispensaries, Infirmaries and Clinics, and have multiplied their patrons fourfold during the last twenty years. We allude to causes that have originated in the profession itself, and which are still in full operation, more especially in all the larger cities. If our readers will revert to the social and professional history of the last thirty years, they will see that the growth of specialties in medicine and the multiplication of Free Dispensaries with overflowing patrons in all the centres of population have kept pace with each other so closely as to indicate something more than mere coincidence.

Prior to 1850 almost all educated members of the profession were general practitioners both of medicine and surgery; and it was regarded as the duty of every one to give faithful and kindly attention to such poor patients as might ask for their services, as is still inculated in our Code of Ethics. If cases occurred involving much expense or too protracted attendance, assistance was almost always rendered by the County Commissioners or Town Supervisors, and in the larger cities here and there a Dispensary was established chiefly for the purpose of furnishing medicines to those who brought prescriptions from physicians stating that they were not able to pay for the medicine needed. Such an institution as the

Dispensary of the present day, with, not only an apothecary to dispense medicine for the poor, but also the regular attendance of a full medical staff embracing one for every recognized specialty, ready to give *special* attention *freely* to the diseases of each organ or group of organs composing the human body, had no existence in our country, at that day. If the physician or surgeon in full practice found more poor patients coming than he could find time to attend to, he sent them to the nearest well qualified young doctor who was waiting for calls and glad to take them, both for the clinical experience he would get and the almost certainty of their proving stepping-stones to other cases that would pay. But the rapid development of *specialties* brought, *pari passu*, the disposition of medical students to educate themselves for *special* or limited fields of practice, and the equal education of the community to look for a special doctor for each region of the body. This soon necessitated the invention of some method by which the young specialist could get himself introduced to the public, and as the Code of Medical Ethics, whether written or unwritten, would not allow them to flood every man's door steps with hand bills illustrated with the cut of an eye, ear, uterus, speculum or stethoscope, the next thing available was to utilize the public sympathy for the sick-poor in establishing Dispensaries, Infirmaries, Asylums, Special Hospitals, Clinics and Policlinics, for each of which there must be the names of a few prominent business men or women to serve as trustees, managers, or its patrons, and a medical specialist for each class of diseases the institution is intended to accommodate. By this process the young doctor sesures a public position which at once brings him in contact with some prominent members of the community, and in plain English, advertises him as a specialist and a liberal friend to the poor. Meantime he has his regular office fitted up in good style for the reception of ordinary patients, and both for the purpose of securing sufficient revenue and duly impressing his customers with the importance of *special* qualifications, he must charge not less than *five dollars* for the most ordinary examination.

Now, with the same *specialist*, or even non-specialist, making a minimum charge for patients at his own office, equal to what most working women can earn by not less than two weeks' hard labor, and at another part of the same day bestowing the same services at the Dispensary for nothing, how long does it take the laboring classes of both sexes to learn the avenues open to them, and to arrive at the conclusion that they are not able to pay the amount of one or two weeks' wages for the same professional services that they can get at the Dispensary for nothing. It is exactly this kind of machinery, invented and fostered by the profession itself, that has, during the last three decades, filled all our cities with so-called medical charitable institutions, converted tens of thousands of the working classes from moderately paying patients into full medical mendicants, and robbed the younger class of medical and surgical practitioners of the patronage of the very class of honest working people, that formerly constituted the chief avenue through which they gained in a few years reputation and full practice. If the members of the medical profession have thus fostered a system of extravagant specialism and equally redundant medical charities, by which they find their own pockets empty, the principal blame is upon themselves, and it will require something more than the closer questioning of the applicants at the door of the Dispensary concerning their pecuniary circumstances to correct the evil.

SOCIETY PROCEEDINGS.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, Nov. 1, 1886.

E. J. DOERING, M.D., PRESIDENT, IN THE CHAIR.

DR. ALBERT E. HOADLEY read a report of

FIVE CASES ILLUSTRATING A TREATMENT OF THE MORE SEVERE FORMS OF STRICTURE OF THE RECTUM.

Case 1.—J. H. G., an engineer, æt 40, with history of piles of eight years standing and stricture two years. Examination revealed a hard carcinoma of the rectum within one and a half inches of the anus, immovable on account of adhesions to the sacrum. The adjacent parts were involved and the bowel completely occluded. The general condition of the patient was bad. Abdomen swollen and very tender. Had not had a passage from the bowels for two weeks. Could not take food without immediately vomiting. Pulse feeble, 120, temperature 102°. At the first examination Dr. Hoadley succeeded in separating the adhesions sufficiently to pass a syringe pipe beyond the immediate stricture. A half-pint of soap water was injected a number of times during the afternoon and evening with the effect of bringing away considerable matter and gas and giving great relief to the patient. Three operations were performed at intervals by which a fair canal through the cancerous mass was made, but without relief to pain. At the fourth operation the lower end of the growth and sphincter ani were divided with one stroke of the knife. There was little hæmorrhage. The relief obtained by the division of the sphincter was tenfold greater than that from all the other operations.

Case 2.—A laborer, forty-two years old, with history of hæmorrhoids, and stricture of five years standing. Examination revealed a firm unusual stricture within two inches of the anus. Syphilis could not be excluded as he was put on large and increasing doses of pot. iod., and a systematic dilatation with an elastic bougie commenced. After four weeks a bougie one inch in diameter could be passed without difficulty. There was no particular irritation at the seat of the stricture, but the bowels were very irritable and there was an increasing diarrhœa. The stricture and sphincters were thoroughly divided and the wound packed with gauze on which dry per-sulphate of iron had been sprinkled. Relief was immediate and complete. Examination two months after the operation showed the wound to be nearly healed and the patient feels better than he has felt for a year previous.

Case 3.—An American woman, aged thirty-nine, the mother of three children; she had a stricture of nine years standing. When the stricture was divided it was found that the rectum contained a carcinomatous mass, almost occluding the canal, higher than could be reached with the fingers. The sphincters were divided back to the coccyx and an incision was made through the mass nearly to the sacrum, and a piece of gauze pressed on the wound to prevent bleeding. A large-sized drainage tube was placed in the bowel above the disease. The rectum was packed and all secured with a **T** bandage and the patient put to bed. After the fifth day day she rapidly improved and left the hospital within a week after the operation. Three months afterward she was comfortable and had gained six pounds.

Case 4.—A German woman of fifty six years, the mother of several children. She had enjoyed good health until the development of the stricture of the rectum about three years before. The stricture and sphincters were divided, and on introducing the finger the bowel was found blocked up with other strictures of a malignant character. These were dilated with the fingers. A violent inflammation supervened and the patient's life was threatened. She made a slow recovery and was convinced that she was made worse by the operation. Dr. Hoadley thought that if the strictures had been incised instead of divulsed, the patient would have derived benefit.

Case 5.—An American of sixty-seven years, the mother of four children. Labor had always been normal and easy. She had a stricture of five years standing. Examination revealed two or three open sinuses and fluctuating abscesses in the ischio rectal region. The abscesses and sinuses were opened and packed with iodoform gauze and the stricture divided, the sphincter being simply dilated. Great relief followed the operation which was made to relieve pain and not with the hope of prolonging life. From a study of these cases, Dr. Hoadley deduced the following principles:

First, it is dangerous to practice divulsion of malignant stricture of the rectum; second, division of a severe stricture of the rectum without dividing the sphincters is of little practical value and has no tendency to cure; third, division of malignant strictures with the sphincter gives great relief and tends to prolong life; fourth, division of severe non-malignant stricture with the sphincters gives great relief and tends to perfect cure; fifth, division of both stricture and sphincter whether malignant or non-malignant is not attended with danger. Therefore we may conclude, that in all severe strictures of the rectum, whether malignant or non-malignant, complete division of the stricture and all the tissues below it back to the tip of the coccyx affords the greatest relief and of the non-malignant strictures, the best means of permanent cure at our command.

Dr. J. Frank thought that if the author had divided his paper into relief for malignant strictures, and treatment for non-malignant strictures, it would have been a better classification. He had not had much experience with malignant strictures, but had divided one in the manner described by the author, by cutting down through the cellular tissue. He thought there was little danger in performing the operation, and was surprised at the small amount of hæmorrhage. But the benefit from the operation lasted only for a short time, there was relief at first but in six or eight weeks the same symptoms returned. Even in extirpated cancerous growths, as far as his information went, they generally return within a year. He had had one case in which the whole cancerous growth was extirpated, but in six or eight months it commenced to return and in a year's time the patient died with cancer. He thought that in dividing the strictures care must be taken not to go too far up the bowel, or too deep, as the peritoneum might be cut into.

Dr. A. E. Hoadley in closing the discussion said: Dr. Frank suggests that we be careful in dividing the strictures high up; I think if we do not divide them higher than we can reach with the finger, dividing them in the posterior line, there is little danger of opening the peritoneal cavity. The peritoneum does not come down as a rule, where it can be reached with the finger. In regard to hæmorrhage, those cases sometimes bleed profusely even though they are divided right in the median line, where we least expect to find blood vessels; the tissues become vascular, new vessels form, and it is necessary to tampon the wound and in doing so it is best to put in a tube to relieve the bowels of gas. The suggestion made in reference to the division of the paper is quite proper; perhaps it would have been better to have said, report of cases illustrating a treatment. The treatment is palliative in malignant strictures, and in non-malignant strictures sometimes effects a cure. In answer to the question how many inches up may we go; it is a rather difficult matter to reach the peritoneum of the posterior wall of the rectum with the finger, even if the sphincter is divided; you can reach about four inches with the finger by pushing hard, and I think I would hate to divide a stricture further than I could reach with my fingers. Even the inferior mesenteric artery (superior hæmorrhoidal) comes down sometimes, before it bifurcates into the lateral branches, within reach of the fingers and may be

divided, but that is no drawback to the operation because you can put a tampon into the rectum so firm that all hæmorrhage can be perfectly controlled and on the next day you may remove about half of the tampon to relieve tension, and the remaining half will tumble out itself three or four days later. It has been my experience, and it is on the authority of the textbooks, that the vessels there can be controlled with the tampon very securely and with perfect safety. It is best to prepare for it and always tampon where you make that division, because moderate hæmorrhage is sometimes quite persistent.

DR. A. J. OCHSNER read a

REPORT OF A CASE OF ACTINOMYCOSIS,

with exhibition of patient. The patient, a stock raiser, aged fifty-six, entered the Presbyterian Hospital of Chicago, October 13, 1886. Until the autumn of 1877 the patient was in perfect health, following his occupation of stock raising. At that time he was exposed to drafts of cold air during a journey, and experienced severe neuralgic pains in the left antrum of Highmore. He had seven teeth taken from his upper jaw from which all the other teeth had previously been removed, but these proved to be sound and he obtained no relief by their removal. For six months he suffered excruciating pain in the left antrum and in both eyes from sunrise until sunset. In 1878 there was a spontaneous opening of the abscess into the pharynx evacuating a considerable amount of pus and some blood and giving the patient marked relief. A portion of the discharge usually entered the larynx at night, giving rise to severe cough. In May of that year the patient underwent a surgical operation, an opening being made into the antrum above the first molar and the cavity curetted and irrigated. The irrigation was continued two or three times daily for two years, during which time he suffered severely from pain and weakness. In the spring of 1882 the patient went to northern Mexico and spent the summer on the plains and among the mountains between that point and Colorado. His general health and strength were much improved. In July, 1885, the patient began to cough and continued to do so until his admission into the Presbyterian Hospital. During September, 1885 and 1886 he expectorated blood, but thinks it came from the posterior nares. Since the first of October, 1886, he has expectorated mucus and pus streaked with blood which undoubtedly comes from the lungs or bronchi. The patient has lost thirty-seven pounds in weight during the past two years; his position is stooping, chest full in front and a decrease of motion on the left side with dulness, roughened respiratory sounds and numerous mucous râles. Below the upper border of the fifth rib and throughout the right side the sounds are normal. The history of the patient led to a suspicion of actinomycosis of the left lung, which had primarily existed in the antrum. By a microscopic examination of the sputum the characteristic fungus was at once found confirming the diagnosis beyond a doubt. Dr. Ochsner considered the following facts of practical interest in connection with the case:

The patient has been engaged for more than forty years in raising, buying and selling large numbers of cattle. Many of these animals suffered from lumpy jaw, and it was his practice to cure them by freely opening the abscess, by crucial incision, extirpating as much as possible of the lump and introducing about one drachm of powdered arsenic into the cavity. Repeating this once or twice, usually effected a permanent cure.

DR. R. H. BABCOCK said: The case is one of exceeding interest from its rarity, and particularly as it is a case occurring in this country and one of very few that have been recorded, and in this case the diagnosis is so unquestionable that the interest is all the greater. We know that in cattle the disease is manifested by tumefaction in various organs, whereas in human beings it is by suppuration and metastatic abscesses. The disease in the human being may effect any of the organs, not merely the lungs, but particularly the viscera of the abdomen. I would like to ask Dr. Ochsner if there are signs of the disease having attacked other parts of the body than those mentioned, any symptoms which lead him to infer that the digestive organs or the stomach are infected.

DR. R. TILLEY said: This is certainly one of the most interesting questions that has been brought before the society for a considerable time. In the case presented to-night the disease seems to have originated in the antrum, and is therefore especially interesting to those engaged in treating affections of the nose and throat, and the teeth, as in the history of this case, there was a considerable amount of pain associated with the eyes, it is of interest to the opthalmologist, and as it is now associated with the lungs, it is of interest to those engaged in the study of affections of the lungs. As this case together with the last case presented to the society, in all probability constitute the only indisputable cases that have appeared in English literature, I think it would be of sufficient interest to the society to ask Dr. Ochsner to carry the investigation still further and try and produce the disease by inoculation on one of the lower animals. I will move at the proper time that the Society place at Dr. Ochsner's disposal the necessary funds. I would suggest that Dr. Ochsner accompany his report with a diagram of the fungus as it appears under the microscope. I have looked at the various schematic sketches that are published, and I claim that it would be absolutely impossible for any one with only the information afforded in these articles, without further study, to diagnosticate the fungi as they appear in the specimens presented. In Dr. Belfield's book I think the diagram is more in correspondence with those we see to-night, but those that are in Councilman's article in Wood's Reference Handbook certainly do not present such an appearance.

DR. J. R. SKEER inquired the condition of the lung at the present time, whether cavernous or indurated.

DR. FRANK BILLINGS endorsed the remarks of Dr. Tilley, and thought the society should afford Dr. Ochsner means to carry on the investigation. It is

not quite settled how this fungus is carried from one tissue to another; in one case it has been proven that it was carried to the heart by ulceration into one of the jugular veins, and it is known that it will spread through contiguous tissue as through the diaphragm from the pleural cavity to the peritoneal cavity. A pure cultivation of the fungus has been made at Berlin.

Dr. Harold Moyer said: There is great uncertainty as to the manner in which the fungus obtains access to the tissues. I would ask Dr. Ochsner if there is anything in history of this case that would clear up that point. Two very interesting cases have been recently reported, in one case lung actinomycosis was diagnosticated during life, and after death of the patient a large actinomycotic mass was found in the lower portion of the upper lobe of the left lung, and in the center of the mass a piece of tooth was found. Israel (Centr. Bl. f. d. Med. Wesseusch) demonstrated actinomycocis in the sputum of that case, and so far as I know it is the only case on record in which a diagnosis was made from the sputum. The other case bears on the manner in which the fungus obtains access to the tissues and is reported by Soltmann (Jahrb. f. Kinderhkde). A child while at play swallowed a head of what is known as fox grass, which was followed by severe pain, difficulty in swallowing, and difficulty in respiration. In a few weeks the head of grass was discharged in an abscess at the left of the vertebral column. In less than six months this case developed actinomycosis. The theory of Israel regarding the first case is that the parasite was carried by the piece of tooth directly into the lung. In the second case the fox grass undoubtedly carried it directly into the mediastinum, which was followed by secondary involvement of the tissue of the lung.

Dr. W. T. Belfield said: I would like to say in reference to Dr. Tilley's proposition, that experiments on the cultivation or transmission of this fungus ought to be made from fungi obtained from animals and not from man; if from the latter, from pus taken from abscess cavities around the jaws. The reason is that fungi obtained in the sputum are far more delicate in appearance and for preservation. I have found that after a few days they disappear or at least are extremely hard to find, and it is stated by those who have had a great deal of experience that the fungi obtained from the sputum are not so robust as those obtained from cattle or from pus cavities, aside from the air passages, in man. In justice to Dr. Schirmer, I would say that in the case reported by him, the fungus was recognized in the sputum and a diagnosis of lung actinomycosis was made.

Dr. R. Tilley said: The question with me was not that of producing the best possible sample of the fungus, but to place cases in question beyond dispute and give the society further opportunities of studying the question. Necessarily American physicians must be ignorant of the question as a whole because it is impossible to get that accurate information from literature that we can get from the study of the manifestations of the disease. I would not discriminate between this case and that of Dr. Schirmer, on the contrary, if there is a probability of developing the fungus from pus, and an animal is chosen, I do not think there would be any objection to taking samples from both cases to inoculate the same animal.

Dr. A. J. Ochsner, in closing the discussion, said: As far as we know at present there is no evidence of the existence of actinomycosis in any other portion of the body; the probable reason of this is the fact that the patient has been exceedingly careful never to swallow any of the discharge from the abscess or any of the sputum. The accumulation of the fungus in the lungs is probably not sufficient for ulceration to have taken place into any of the other organs. The amount of sputum during twenty-four hours is between one and two ounces, and some days there will be one or two of these accumulations of actinomyces of considerable size and a few very small points, and on some days it is impossible to demonstrate actinomycosis. On Saturday there were, I think, a dozen quite large accumulations and quite a number of small ones, so that judging from the number we find in the sputum, and from the physical signs, which are a decrease in the motion of the left side, mucous râles, and very slight dulness on the left side above the fifth rib, the accumulations are not very great, and we do not find any signs of the existence of actinomyces in any other organ, which answers also Dr. Skeer's question concerning the condition of the lungs at present. Concerning the access to the tissue the patient had teeth removed from the left side of the upper jaw a number of times, during which time he was constantly handling animals suffering from lumpy jaw, which is the same as actinomycosis in man, and constantly handling objects that came in contact with these animals. Another point of interest which might give us some light as to the possible introduction of actinomycosis in man is this: The patient tells me that on the farm whenever one animal has lumpy jaw, a number of animals are very likely to have it soon after. This happens generally in the spring of the year, or late in winter, when animals are likely to rub their necks on the fences. He thinks these animals with lumpy jaw rubbing their necks on the fences are likely to leave some of the actinomyces and the healthy animals are likely to scratch their skin and break the hide, and in that way become infected. The plants are exceedingly small and could with great ease be introduced into the mouth and the cavities of the teeth, or into the jaw from which teeth had been extracted. Drs. Ross and Robison are treating the patient at present by means of the pneumatic cabinet, introducing into the lungs 1-1000 solution of bi-chloride of mercury. It seems that more of the actinomyces have been coughed up since this treatment began, but it has been of such short duration that nothing certain can yet be said.

The Committe on Pathology reported through Dr. W. T. Belfield the examination of the case of actinomycosis hominis presented to the society on September 6th. The patient is a man about twenty-five years old, emaciated and feeble. The lateral diameter of the neck is considerably increased by inflammatory thickening of the superficial cervical tissues which

are hard and unyielding; on either side of the neck is a ragged scar and small fistulous opening from which issues a slight serous discharge. The jaws could be separated to only a slight extent; but so far as could be determined, the mouth and throat presented nothing abnormal; no carious teeth were detected.

Dulness on percussion and broncho-vesicular breathing were found over the apex of either lung; on the left side in the supra clavicular region and first intercostal space anteriorly; on the right side down to the third rib.

The patient coughs frequently and occasionally raises considerably sputum. About an ounce of sputum was collected from which slides were prepared and several specimens of actinomycetes were detected.

September 28 an incision was made in the left side of the neck, giving exit to a small quantity of pus, containing actinomycetes. It was the opinion of Dr. Belfield that this patient is the subject of actinomycosis.

DR. BELFIELD said that he had been informally requested by the President to examine the case presented by Dr. Ochsner, and had found the patient exactly as described. He thought there was no question about the genuineness of the specimens exhibited. The diagnosis rested altogether on the detection of the fungi in the sputum, because if that were absent the physical signs might be due to some other cause, but he thought the physical signs in this case were caused by the fungi in the lungs.

On motion of Dr. Tilley, fifty dollars was voted to Dr. Ochsner and two members of the society for the purpose of making a series of experiments with actinomycis.

FOREIGN CORRESPONDENCE

LETTER FROM PARIS.

(FROM OUR OWN CORRESPONDENT.)

Relation of Tuberculosis and Scrofula—Iodol; in Abscesses; in Eye Diseases; Internally—Collyrium for Strabismus.

The question of the identity or non-identity of tuberculosis and scrofula has long been a mooted point in the profession, some pathologists considering them as two distinct morbid conditions, while others confound them in one and the same affection. Dr. Arloing, a well-known experimental biologist, in a communication lately made by him to the Academy of Sciences, somewhat elucidated the subject, but it still remains open as to whether the two affections in question have the same origin or not. In a note addressed to the Academy about two years ago, Dr. Arloing endeavored to show by experimental researches that he had prosecuted with guinea-pigs and rabbits, that while these animals were susceptible of being infected with pulmonary tuberculosis, true glandular scrofula did not cause any visceral lesions in the latter. He did not, however, feel justified in concluding from this fact that the two morbid processes were specifically distinct, but, at the same time, while admitting the hypothesis of a common origin, for the present, for these two affections, its activity was considerably attenuated in scrofula. With this idea, it was interesting to find out whether it was possible to augment the virulence of scrofulosis to such an extent as to enable it to effect the rabbit and guinea-pig indistinctly. The organism of the guinea pig is a soil extremely favorable to tuberculosis and scrofula. The latter invades its economy with such facility, and assumes such malignity, that the author was induced to inquire whether, by inoculating it through several generations, in the guinea-pig, he might be able to increase its activity enough to overcome the resistance offered to its inaction in the organism of the rabbit.

The experiments prosecuted in this direction by Dr. Arloing showed that the passage of scrofulosis in the guinea-pig, during two successive generations, does not augment the virulence for the rabbit, nor does it modify sensibly that which it possessed for the guinea-pig. The result would be different with true tuberculosis under its attenuated forms. Among the osseous and the articular affections of human beings known as local or surgical tuberculoses, some are beyond the resources of art, while others are considerably improved, if not cured, by the intervention of the surgeon. The latter are, according to the author, always manifestations of scrofulosis, the former are those of tuberculoses, but of a milder virulence than tuberculosis of the lungs or of serous membranes. If rabbits and guinea-pigs be simultaneously inoculated with material drawn from lesions of this nature, it may happen that the guinea-pigs present the classical alterations of generalized tuberculosis, whereas the rabbits escape with a little localized suppuration. But if the tubercles developed in the guinea-pigs be inoculated in other rabbits, the latter almost invariably contract pulmonary tuberculosis. Sometimes it is necessary to have two successive cultures to attain this result. This fact, concludes Dr. Arloing, deserves to be taken into serious consideration, as at present there is such a tendency to confound tuberculosis and scrofula in one single affection. It justifies once more the difference that the author had experimentally established between these two morbid conditions. If it is not yet proven that they are the work of distinct viruses, if it must be admitted that they are derived from one single agent, the tubercular bacillus at different degrees of activity, it must be accorded that, in true glandular scrofulosis, it is further from its primary virulence than in local tuberculoses.

Iodol may be applied in different forms, in powder, in solution, or with gauze soaked in the latter. The solution preferred till now is prepared by dissolving one part of iodol in sixteen parts of alcohol and adding to this thirty-four parts of glycerine. According to Dr. Ferrand, of Montpellier, this preparation is found useful in all cases of deep abscesses, fistulæ, or wounds of cavities. In the treatment of affections of the eye, the author recommends preferably the use of the powder of iodol mixed with some

inert powder, as in the following formula: Iodol, 1 gramme, powdered sugar, 5 grammes. This composition, says Dr. Ferrand, has the advantage of never producing any irritation in the eye. He has also employed, with good effect, an ointment composed of: Iodol, 1 gramme; vaseline, 20 grammes. As regards the internal use of iodol, the author thinks that it has been very much neglected, and unjustly so, but speaking from his own experience he could safely recommend it as a valuable therapeutic agent. For the dressing of wounds it is equal to iodoform. It possesses, like the latter, remarkable healing properties, and is its equal as an antiseptic, but it has the advantage over iodoform in being less toxic and being deprived of its characteristic odor, which so often disgusts patients, and sometimes even the surgeon.

Dr. Boucheron recommends the following collyrium for strabismus: Sulphate of atropine, 5 centigrammes, distilled water, 15 grammes; 3 drops to be instilled into the eye, at the commencement of convergent strabismus, and while it is still intermittent. Improvement takes place in a few weeks. Later on, for reading, convex glasses should be worn to remedy the hypermetropia, which is the primary cause of the strabismus. As soon as the convergent strabismus becomes constant, there is nothing else to be done but to practice strabotomy. A. B.

DOMESTIC CORRESPONDENCE

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

New York State Medical Association — Gunshot Wounds of the Intestines.

The third annual meeting of the State Association, which was held November 16, 17 and 18, was, like its predecessors, successful and attractive in every way. It convened at Lyric Hall, on Sixth Avenue, instead of at the Murray Hill Hotel, as heretofore; though the pleasant *conversazione* and supper tendered the Association by the Council on the evening of the last day of the session were at this hotel. The address of the President, Dr. E. M. Moore, of Rochester, was principally devoted to an extended critical consideration of Dislocation of the Radius backward (by elongation).

Perhaps the most noteworthy feature of the meeting was the set discussion on "Shot Wounds of the Intestines," in which pains was taken to secure the participation of the only two men in America who have successfully performed laparotomy, with suturing of the intestines, in these cases, as well as a number of other distinguished surgeons, not only from the State of New York, but also from other States, such as Professor Charles T. Parkes, of Chicago, Dr. Theodore R. Varick, of Jersey City, and Dr. Charles B. Nancrede, of Philadelphia. A remarkable fact about it was the entire unanimity of opinion of all the speakers, without any previous comparison of views, in regard to all the essential points entering into the matters under discussion.

The general introduction of the subject was made by Dr. William S. Tremaine, of Buffalo, who quoted from a number of high surgical authorities, only to show that their works threw but a faint light on one of the most prominent topics now upon the minds of the profession. In his conclusions he stated that the calibre of the ball, the proximity of the weapon, and the direction of the missile at its entrance to and exit from the abdomen, were all matters of importance. Prolonged shock, tympanitis, marked pain, restlessness and anxiety, indicate probable perforation of the intestine. Escape of blood from the anus, which was regarded as a valuable sign by the late Professor Gross, was rarely seen sufficiently early to be of any diagnostic significance; but when it was noticed, was a valuable sign. Dr. Tremaine in general recommended laparotomy in gunshot injuries of the abdomen; first, because the intestines might be wounded; second, because in nine cases out of ten, the removal of the blood effused would relieve the patient from much danger; third, because abdominal section added a very small element of danger to the already existing condition of affairs; and fourth, because of the assurance given to the patient that the intestines were not wounded, so that he need not anticipate future trouble from this source. When we were positive that the intestines were wounded, there was no question about the propriety of operating.

Having alluded to the three successful cases reported in America, two by Bull and one by Hamilton, Dr. Tremaine said that the best time for laparotomy was as soon as practicable after the receipt of the injury. Peristaltic action was paralyzed for a time, and this tended to prevent extravasation of fæces; an advantage which would be lost by delay. Delay also increased the danger of peritonitis. He suggested that physicians throughout the country should familiarize themselves with the details of laparotomy by practising on animals; so that when called upon to perform the operation they would be able to do it in a satisfactory manner. In speaking of the technique of the operation he recommended the suture of Lembert, and dwelt upon the necessity of leaving a clear cavity.

Dr. Joseph D. Bryant, of New York, spoke on the diagnostic signs of the involvement of the intestines, and said that there were two classes of symptoms: 1, those referable to the abdomen itself; and 2, those showing the constitutional effects of the injury. In considering the local manifestations it was necessary to study the wound of the abdominal wall, the direction of the missile, the character of the discharges, and the presence or absence of emphysema of the borders of the wound or in the neighboring connective tissue. If the direction of the ball indicated that it passed through the abdominal wall, the presumption was that the intestines were wounded. Still, cases are on record which proved the exception to the general rule. If the bleeding points in the abdominal wall would not account for all the hæmorrhage noted, it was fair to suppose that the intestinal viscera were wounded. The same was true in regard to the occurrence of bloody urine. Escape of the intestinal contents was, of course,

proof positive; but this was rarely seen early. Early emphysema of the abdominal wall was usually regarded as a certain sign of intestinal perforation; but while this was true, as a general rule, he had known of two instances in which emphysema was due to the suction action of the abdominal muscles. If there was any decomposition, also, emphysema might occur without rupture of the intestines; but such a phenomenon was almost always seen late.

Severe pain, tympanites, bloody stools and retention of urine, were all symptoms of considerable importance. While hepatic resonance might in exceptional instances be due to more or less tilting of the organ, or to the pressure of the transverse colon between it and the abdominal parietes, as a rule it was to be regarded as an almost pathognomonic sign of intestinal perforation. Among the other symptoms were shock, nausea, vomiting, extreme thirst, restlessness, anxiety and subnormal rectal temperature. Hiccough usually followed nausea and vomiting. Severe shock might, of course, be caused by profuse hæmorrhage. There were, however, very positive indications of intestinal perforation that were of early occurrence. The loss of hepatic dulness, unless previously modified by change of position or abnormal processes, Dr. Bryant thought perhaps the most reliable.

Drs. W. T. Bull, of New York, Theodore R. Varick, of Jersey City, and Charles B. Nancrede, of Philadelphia, discussed the question: Under what circumstances, and how soon after the injury, should laparotomy be resorted to, and when is the operation contraindicated? Dr. Bull said that laparotomy was indicated, in the first place, for diagnosis. Many cases presented few of the symptoms supposed to be characteristic of involvement of the intestines. Again, it was a well ascertained fact that a bullet which had entered the peritoneal cavity was much more likely to have injured the gut than not. The operation should be undertaken just as soon as the immediate shock of the injury and the removal of the patient had passed. Delay invited septicæmia, and it was best not to wait for symptoms. Exploratory laparotomy would clear up the diagnosis, and it was not without good effect even in non-penetrating wounds.

Since 1877 he had seen eight cases at the Charles Street Hospital. Five of them, treated on the expectant plan, all proved fatal. Of the other three, which were operated upon, two recovered and one died. In the first of these, which occurred in 1884, and had been fully reported, seven wounds were sutured. The second occurred in August, 1886, and had recently been reported at the New York Surgical Society. The patient's age was 25, and he was operated on two hours after the injury. Three wounds of the intestines were sutured. Two wounds of the mesocolon were not sutured, but thoroughly rubbed with iodoform. One of the appendices epiploicæ, of good size, was found torn and bleeding at its extremity, and it was tied at its base with catgut and cut off. The abdominal wound did not heal thoroughly for eight weeks, as a knuckle of intestine protruded through it. By means of a pad of iodoform gauze and wool it was gradually pushed back, while the edges of the wound were held together with two "relaxing sutures" of silver wire. To-day the man is perfectly well. The third case has never been reported, and Dr. Bull gave its history somewhat more in detail. The patient was admitted to the hospital November 6, 1886, shot in the abdomen by a pistol of 44-inch calibre. An incision was made in the median line, as in the other cases, and four perforations of the intestines were sutured. The operation lasted one hour and three-quarters, and death resulted eight hours afterwards, probably from the shock incident to the laparotomy.

None of the three cases, he went on to say, presented positive proof of intestinal perforation before the operation was undertaken; but the lesions in the last case, as in the others, indicated laparotomy. Having given a sketch of the five fatal cases referred to, he spoke of the contraindications to laparotomy. In shot wounds of the peritoneal cavity, many of them involved the solid organs, as well as the intestines, and the hæmorrhage was so profuse that no hope of recovery was offered. In injuries of the liver and spleen, and to a somewhat less degree of the kidneys, he doubted our ability to cope successfully with the condition; and uncomplicated wounds of the intestines, not accompanied by profound shock, offered the best chance of recovery. Profound shock he regarded as a decided contraindication. The exposure and handling of the viscera was in itself dangerous. Peritonitis was not necessarily a contraindication. In all cases except where the wound was posterior, and there was no wound in front, the first thing to do was to explore the bullet wound and find out where it went to. The two great rules of procedure were, in his opinion, first, to assure yourself by an exploratory incision, that the peritoneal cavity had been entered; and, second, to repair the injury that had been caused by it.

Dr. Varick said that shock with gradually increasing exhaustion, sinking temperature, and dulness of the dependent portions of the abdomen, with tympanites of the anterior portions, demanded immediate laparotomy. Having referred to tympanitic resonance over the hepatic region, he remarked that the day of the expectancy is past. The surgeon should give his patient the chance offered by laparotomy, however small it may be; for without it there is only a prospect of certain death.

Dr. Nancrede advocated laparotomy in all cases except where certain contraindications were present, and said that it should be performed just as soon as the condition of the patient would warrant the performance of a long operation attended with shock, and proper assistants and other requisites for operation could be secured. When much hæmorrhage was probably taking place it was justifiable to operate at an earlier period than in other cases. Among the contraindications was profound shock not due to hæmorrhage. It was better that every physician should not attempt to perform laparotomy, for these cases would, as a rule, do better if left to nature than if operated on by one not familiar with the procedure. Experience, he believed, was a prerequisite for suc-

cess. If possible, also, only one pair of hands should be allowed to pass into the peritoneal cavity. Unlike Dr. Bull, he thought that acute peritonitis was a contraindication; but he agreed with him that wounds of other organs might prove a contraindication.

Dr. John B. Hamilton, of Washington, D. C., thought that the first thing to do on being called to such a case was to probe the wound, if made by a small pistol, and the instrument that he recommended for the purpose was the flexible spinal probe of Nélaton. If the cavity of the abdomen was found to be penetrated, laparotomy was indicated. In case great shock was present he thought exploratory laparotomy was indicated, as it was probably due to injury of a vessel or nerve or ganglion. As to the essential features of the technique of laparotomy, these did not differ from those of the technique of ordinary laparotomy, except as regards the management of the intestines. Rigid antisepsis should be carried out, and towels wrung out of hot water containing bichloride in solution should be first placed over the abdomen. On opening the cavity bleeding points should be carefully looked for, and no abrasion should be left untouched. The intestines should be drawn out loop by loop by the fingers and allowed to remain on a towel wrung out with bichloride solution; another towel similarly treated being placed over them. When wounds were found, they should be stitched, and it was necessary to reduce pouting mucous membrane. Like the other speakers, he preferred the Lembert suture, and the material he used was catgut. The incision should be closed in the same way as in other cases of laparotomy, after the cavity has been thoroughly cleansed.

Dr. Charles T. Parkes, of Chicago, gave an admirable summary of his views on all the various questions involved in the discussion. If the abdomen was penetrated, he said, it was morally certain that the intestines were perforated, and the surgeon should be deterred from performing laparotomy only on the strongest grounds. Deep-seated emphysematous crackling he had found present in two cases, and he considered it a very valuable sign of perforation. The first thing to do in the way of treatment was to ascertain whether the wound entered the abdominal cavity. He spoke particularly of the dangers to which the patient was often subjected in removal, which should be performed with the utmost possible care when necessary.

As to the question under what circumstances should laparotomy be resorted to? he said, under all circumstances except where the patient was likely to die during the operation. The implication of other organs beside the intestines was, he agreed with the other speakers, a contraindication. As to the time for its performance, he thought it should be done just as soon as the surgeon's necessary preparations could be made. He should be guided by the same rules as in all grave surgical troubles. If perforation was known to be present, there was no contraindication; for we could not say that a case was a fatal one until after performing exploratory laparotomy. In regard to the technique of the operation, he considered the median line as the only proper point for the incision. The cavity having been opened, the next thing to do was to secure all bleeding vessels. Then the intestines were to be drawn out through the incision, which should be free, and wounds in the large intestine and other viscera looked for. Having stated that the whole small intestine should be passed through the fingers, Professor Parkes devoted considerable attention to the details of repairing perforations in the gut. Lembert's suture was the best, and he preferred puce silk introduced by means of a small round needle, either straight or curved. A double row of sutures he considered quite unnecessary. The abdomen should be closed in the usual way; great care being always taken to avoid ventral hernia. In the after-treatment the most complete rest was essential. Opium in sufficient quantity to secure this was called for, and rectal alimentation was not infrequently of service. It was desirable to keep the temperature low; but if it became high, cold should be applied externally. If it did not rise above 101°, however, no interference was called for.

STATE MEDICINE.

POISONED BEEF, CHEESE AND ICE CREAM.

Synopsis of a Paper read before the Mansfield Lyceum, on Nov. 10, 1886. By R. Harvey Reed, M.D., Mansfield, Ohio.

Sickness from the use of beef, cheese and ice cream, a few years ago, would have been considered a pathological curiosity; at present, but especially during the summer months, the reports of alarming attacks of sickness from eating one or the other of them are a common occurrence. The frequency of these sudden outbreaks of disease, and the alarming symptoms associated with them have aroused the attention of Sanitarians, who have been diligently at work studying out their causes, and the best means for preventing them.

It was only a few months since we had several examples of the effects of eating poisonous dried beef in our own city, and unless the causes producing these toxious effects are removed or avoided, we are liable to have similar results not only occurring from eating dried beef, but cheese, and that, great American luxury, ice cream. It must be remembered that the causes producing sickness from eating dried beef are entirely different from those producing sickness from eating the so-called "measly pork," or pork affected with trichina spiralis. The poison existing in the dried beef belongs to that class of cadaveric alkaloids known as ptomaines poisonous alkaloids formed in the meat through a process of putrefaction, which no amount of cooking or ordinary heat will destroy, while that in "measly pork" is only the living embryo of the tape worm, and can easily be killed and made perfectly harmless, or at least to a great extent harmless, by cooking thoroughly. Dried beef having these poisonous alkaloids, usually is found containing great numbers of micro-organisms, yet our best authorities do not consider these the direct causes of the disease as is readily shown by the

simple experiment of cooking meat with these in, which has not any of the ptomaines, and eating it, which has been found harmless, but meat with or without these micro-organisms in, but containing these cadaveric alkaloids, is still found poisonous whether cooked or not cooked. It has also been very clearly demonstrated that these alkaloids, when extracted by chemical process and given to the lower animals or man, produce the same general symptoms, produced in persons who ate of the meat containing the same particular poison in its crude form.

The question naturally arises, how does it come we have these cases of poisoning occurring now, which years ago was never heard of? The question is easily answered: Years ago the patent quick process of curing meat was unknown. The meat was given plenty of time to cool off after it was killed, and lose its animal heat before it was salted or placed in the curing brine. Pure salt was used or a brine of salt and nitrate of potash and brown sugar, familiarly known as a "sweet pickle," in which the meat was kept for a month or six weeks, until every particle and fiber of the meat was thoroughly saturated with this preserving liquid, after which it was taken out and thoroughly dried and smoked, which usually occupied from a month to six weeks longer, thus giving plenty of time for the pyroligneous acid, which is given off freely in the smoke of an ordinary wood fire, and especially that of hickory wood, to penetrate the meat and act its part in the curative process of the meat, which is no small part I can assure you, and which gives to all smoked meat that pleasant taste and peculiar odor.

Thus you will observe the old-fashioned "Country Method," as it is sometimes called, of curing meat required from two to three months to complete it in all of its details, but if properly conducted the meat was thoroughly cured, and was, if not diseased when killed, "sweet" and healthy meat that would harm no one to use in proper quantities, and would keep for months without spoiling. On the other hand, the meat of to-day is largely supplied to our cities from "packing houses," whose managers adopt the quickest method possible, to put their meat on the market after it is slaughtered. Instead of the old-fashioned process being used, which required months, they have adopted a new process, which enables them to put their meat on the market in almost as many days.

Animals are hardly given time to die after they are taken in hand by the butcher; but a few minutes are allowed for the dressing process, and no time for cooling further than that required for the dressing and cutting into suitable pieces, when it is injected with a preserving liquid, which is actually squirted into the muscular fiber in different places in each piece, owing to the size, when the meat is ready for a little smoke to give it the appearance of cured meat, and it is then ready for sacking and placing on the market, all of which only occupies a few days. It only requires a day or two with the proper kind of a building and fire, to smoke the meat brown, and as that is all they desire, as the pyroligneous acid has already been injected into it in a chemical form with "their preserving liquid," they thus save a great amount of time in this as well as avoiding the loss of time in the old salting process.

It is in this class of meat these poisonous ptomaines are most liable to form, for the reason that sufficient time is not given, and proper care taken to thoroughly cure the meat, and if ever so free from decomposition when sent out, if not sold and eaten promptly, it is liable, especially in warm weather, to undergo a degree of decomposition, forming these alkaloids and become injurious, or if not it soon becomes sour, and thus favors the formation of these poisons, and besides, is generally filled with great quantities of micro-organisms, which are ever ready to seek a nidus in poorly cured meat, but which may or may not be injurious to the human system.

Another class of meat in which these poisonous alkaloids are liable to form, is refuse meat that is left in the shops until it has become tainted, when it is put through a curing process, and either dried or sold as corned beef, or cooked and sold as canned beef. In this case, these alkaloids may form before it is subjected to the curing process at all, and when once formed no amount of cooking will remove them, or they may, as in the former case, form after it has passed through this process. No meat is fit for use, on general principles, that responds to the acid test, or in other words, is sour, which can be easily tested by wetting the meat and applying litmus blue, which will turn red if sour; especially is meat that is supposed to be cured unfit for use that responds to the acid test with litmus paper. Cadaveric alkaloids are much more to be dreaded in one sense, than either the trichina or cysticercus, for the latter can be rendered harmless by thorough cooking, while the former is unchanged; although the parasites are to be dreaded more if once entered into the human economy than the ptomaines as a general rule, yet they are so much more easily destroyed, that their virulency is very greatly lessened. No expert can tell by looking at a piece of meat with ever so much care, or even by testing it with litmus paper, that it is free from poisonous alkaloids; the outside may be free from them, while the centre may contain them, which can only be told by cutting it open and applying the litmus test, and then it cannot always be told without eating it, or applying a chemical test or microscopical examination. The fact of it being sacked or not, has nothing to do with protecting it from these alkaloids, or of increasing them; all the benefit derived from sacking is to prevent it from getting so dirty, and avoid getting it fly-blown in the summer.

The dirty habit of chipping dried beef as it is done in our groceries is to be detested. If you will take any piece of dried beef or meat of any kind, and if you can't detect the mould on it with the naked eye, you can detect a perfect forest of this fungus with a microscope of very low power, together with dirt and filth of all kinds. Yet our average groceryman will throw a piece of meat into the chipper, and without cutting the outside off at all, which ought to be done every time. He "chips" away at it, dirt, mould and meat, until it is done, while the average dried beef eater munches it down dirt and all, just as received

from his grocer, in ignorant innocence of its filthy condition, while his poor stomach is forced to contend with a mass of filth which the owner would scarcely deign to have on his shoes.

Poisonous Cheese.—Although of less importance as food than meat, yet the amount of cheese used in this country makes it highly important that it be of the purest and best quality; that this is not the case has been demonstrated by the sudden and severe sickness following its use in many places. The frequency of these cases of so-called "cheese poisoning" attracted the attention of sanitarians a few years ago, who soon commenced to seek for the cause and search for its remedy. A few years ago, while I was practising in the Western Reserve, I met with numerous cases of cheese poisoning. More recently Michigan suffered from the same cause, and in 1883 and 1884 reported over 300 cases. Being located in the cheese manufacturing district of the Western Reserve during the occurrence of a number of these cases, I made it my business to investigate into the probable causes of these cases of "cheese poisoning." I discovered that the majority of the poisonous cases come from porous cheese. I also learned at these manufactories they allowed the curd to stand until it commenced to ferment, or get "enough of acid," as they termed it, "to make the cheese light and porous," before they would put them to press. Again, in cheese which had not been allowed to ferment so much, they would fail to press them dry enough, and leave the cheese with more or less whey in it, which would soon ferment, and again we would have a poisonous cheese.

The investigations made subsequently by Professor Victor C. Vaughan, chemist for the Michigan State Board of Health, and reported at the meeting of the American Public Health Association in 1884, showed clearly that this poison consisted in a chemical compound he named tyrotoxicon, and which he found to belong to the ptomaine poisons, and that associated with this were found to be myriads of bacteria. Whether this poison is the result of decomposition, or the presence of bacteria, is a question; although, from the results of subsequent investigations in the same direction, I am of the opinion now that this poison arises, as in the case of the beef, from decomposition, and that the bacteria aid in hastening this fermentive process.

It will be remembered that these poisonous matters were almost always found in those cheeses which, from some cause or another, had been over-fermented either before or after pressing. Thus you will observe only one or two out of hundreds might become poisonous, while the rest would be all right. As yet no person can tell by the general appearance of the cheese which is the poisonous cheese and which is not. In the average cheese manufactory, the care taken in the manufacturing of these products is to be commended, and I think the occurrence of these "poisonous cheese" and their results were a mystery to them and unexpected when they first began to occur, but with our present knowledge their occurrence should be the rarest exception.

Poisonous Ice Cream.—In 1885 one hundred cases of poisoning from ice cream was reported by the Brooklyn Board of Health occurring from the cream sold by one restaurant, whilst in Michigan, New Jersey and Ohio many other cases of a severe and alarming character have more recently occurred. In this, as in the cheese and beef poisoning, the victims are seized with severe gastro-intestinal irritation, characterized with sudden and irrepressible vomiting and purging, with dryness and constriction of the fauces, associated with more or less griping, with general prostration, and occasionally vertigo. The source of all these dreaded symptoms was eagerly sought for, and their causes, if possible solved by experiments and repeated investigations. After numerous experiments by Prof. Vaughan, of Ann Arbor, it was found that the poisoning occurring from the eating of ice cream was caused, as in the case of cheese-poisoning, by a highly toxic ptomaine known as tyrotoxicon, which discovery has been confirmed since by Dr. W. K. Newton and Mr. Shippen Wallace, the analysts for the New Jersey State Board of Health, but "the circumstances under which tyrotoxicon develops, require further study;" yet it has been shown that it may develop in normal milk, kept in clean bottles for three months, although it may occur under other circumstances much sooner, which in still more recent experiments and investigations has shown it to occur in fresh milk in a few hours.

Repeated experiments and investigations have put it almost beyond a doubt that the occurrence of these ptomaines in ice cream is due, as in the case of the beef and cheese, to the result of a ferment of a certain character; it is true that they do not occur every time there is fermentation going on, but every time they do occur there has been a process of fermentation occurring at the same time. The prevalence of cheese poisoning in Germany would tend to confirm this theory, for it is well known that the so-called "Dutch cheese" is subjected to a much greater degree of fermentation than the "Yankee cheese," while the "French cheese" is almost entirely free from ferment of any kind, and it is a remarkable fact that "cheese poisoning" is almost entirely unheard of in France, while in England and America it is of quite frequent occurrence.

It has been clearly demonstrated that it does not necessarily result from the food given the cow, for it will occur when the very best and cleanest food is given and every precaution taken to keep the milk free from all ordinary dirt. But it has been clearly demonstrated by the investigations of the New Jersey State Board of Health, that the shipping of milk before it has lost its "animal heat," especially in warm weather, and been properly "cured" by cooling and airing, does favor the production of these poisonous ptomaines. Prof. Vaughan has suggested the possibility of this poison being the chief cause of cholera infantum in many instances, the suddenness and violence of the attack in each, together with the close resemblance of the leading symptoms, is at least suggestive to the close observer, although as yet it has not been positively demonstrated.

The most important question to us all is, how are we to avoid this toxic agent? When we remember

that not only in poisonous beef, cheese and ice cream, but in the poisonous sausage of Germany, and the poisonous fish cases occurring among the natives along the Volga, they are all traceable to one general source, and that is, the presence of a certain degree of decomposition. This being the cause, then, we must apply the remedy, which is plain to every one. Measures must be taken, either legal or otherwise, to have our meats better cured; such a degree of care being compelled to be taken as will insure the perfect preservation of our meats without the least degree of putrefaction. All meats that are tainted by laying around in the boxes and on the counters of our shops should be condemned, and not allowed to be used at all where there is any possibility of sufficient taint as to favor the formation of these poisonous ptomaines.

There should be a rigid inspection of our cheese factories, and such legal restrictions thrown around them as will not permit the over-fermenting of the cure, or imperfect pressing and curing of the cheese, or of the slightest decomposition of the milk before it reaches the factory, and no cheese should be used for food that shows a decidedly acid reaction with the litmus test, when slightly moistened. No milk should be used for making ice cream that shows an acid reaction with litmus paper, not that all sour milk contains tyroxicon, but that tyroxicon has always been found in fermented or sour milk. It must be remembered that the "curdling" of the milk or cheese, by the aid of rennet (or calf's stomach), is not a process of fermentation, but a process of digestion, produced by the peptones of the calf's stomach, which, at a certain temperature, have the peculiar property of coagulating milk, but that after this digesting process has been arrested, and the coagulate has been allowed to stand for a certain length of time, at a favorable temperature, fermentation is easily induced, and it is at this stage, and under these circumstances, these chemical changes take place, and a harmless article of diet is transformed into a violent poison.

MISCELLANEOUS.

CHICAGO GYNÆCOLOGICAL SOCIETY.—The annual meeting of this Society was held on Friday, Oct. 22, 1886. The following officers were elected for the year 1886–1887:

President—Charles Warrington Earle.
First Vice-President—E. C. Dudley.
Second Vice-President—T. D. Fitch.
Secretary and Treasurer—Edward Warren Sawyer.
Editor—W. W. Jaggard.

CHOLERA IN SOUTH AMERICA.—A cablegram of November 22, from Lisbon says: It is officially declared that Rosarie, in the Argentine Republic, is infected with cholera. Several points in the country along the Rio de la Plata are suspected to be also infected.

A dispatch from Santiago, Chili, of November 22, says: The Government is preparing plans to prevent the appearance in Chili of Cholera, which is prevalent in the Argentine Republic. It is stated that a sanitary cordon will be formed in the Cordilleras. Vessels coming from ports where cholera exists will be placed in strict quarantine until visited by medical officers.

ETHICAL QUERIES AND ANSWERS.

WHAT CONSTITUTES A CONSULTATION?

TO THE EDITOR OF THE JOURNAL:

Dear Sir.—We note the query and your answer in THE JOURNAL of July 24, 1886. Suppose we put the shoe on the other foot. A regular is asked to have an irregular—say an eclectic—see his patient. He calls for the eclectic and takes him to the bedside. The patient is examined, the treatment is enquired into, disapproved, and the eclectic makes a prescription, though the attending physician does not accept it, and ignores the latter clauses of Art. IV, Sec. 3, Code—all the worse for him and scientific medicine, as the patient dies—has he not violated both the spirit and letter of the Code of Ethics?

PHYSICIAN.

Answer: The rules given for conducting consultations do not appear to have been adhered to certainly. [ED.]

PERCENTAGES ON PRESCRIPTIONS.

B. W. T., asks the following question:

"Is it considered a violation of *Ethics* for a physician to receive a percentage on his prescriptions from a druggist?"

If the correspondent intends simply to ask whether the practice of receiving from the druggist a percentage on prescriptions violates any expressed rule or clause of the Code of Ethics of the American Medical Association, we must answer, that the Code makes no allusion to such a practice either directly or indirectly.

But if he uses the word *Ethics* as synonymous with correct morals, or principles of honorable dealing, we must answer his question affirmatively. Such a collusion between the doctor and the druggist as the question implies, must be placed on the same moral or ethical plane as a similar agreement between a hospital steward and the grocerymen and provision dealers for a percentage on the orders he may give them for hospital supplies. [ED.]

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 13, 1886, TO NOVEMBER 19, 1886.

Major C. R. Greenleaf, Surgeon, relieved from duty at Columbus Bks., Ohio, and ordered for duty as attending surgeon at Hdqrs. Div. of the Missouri, and examiner of recruits at Chicago, Ill., S. O. 268, A. G. O., Nov. 17, 1886.

Major Henry R. Tilton, Surgeon, relieved from the duties of attending surgeon at the Hdqrs. Div. Pacific and Dept. of Cal. S. O. 96, Div. Pacific, Nov. 9, 1886.

Major W. E. Waters, Surgeon, ordered from Ft. Spokane to Vancouver Bks., W. T., for duty at that post. S. O. 197, Dept. Col., Nov. 8, 1886.

Par. 8, S. O. 257, A. G. O., Nov. 4, 1886, is so amended as to direct Major V. B. Hubbard, Surgeon, to report in person to the commanding officer Columbus Bks., Ohio, for duty. Par. 3, S. O. 268, A. G. O., Nov. 17, 1886.

Major Chas. Smart, Surgeon, granted leave of absence for one month. S. O. 265, A. G. O., Nov. 13, 1886.

Major D. G. Caldwell, Surgeon, granted leave of absence for one month, with permission to apply for twenty days' extension. S. O. 150, Dept. Platte, Nov. 12, 1886.

First Lieut. C. N. B. Macauley, Asst. Surgeon, granted leave of absence for twenty days. S. O. 118, Dept. Dak., Nov. 8, 1886.

First Lieut. W. D. Crosby, Asst. Surgeon, ordered from Ft. McDowell, A. T., to Ft. Bowie, A. T. S. O. 110, Dept. Ariz., Oct. 29, 1886.

First Lieut. E. R. Morris, Asst. Surgeon, ordered from Ft. Bayard, A. M., to Ft. Thomas, A. T. S. O. 110, Dept. Ariz., Oct. 29, 1886.